THE RAILWAY GAZETTE

A Journal of Management, Engineering and Operation

INCORPORATING

The Railway Engineer · TRANSPORT · The Railway News

The Railway Times · Herapath's Railway Journal ESTABLISHED 1835 · THE RAILWAY RECORD. · RAILWAYS ILLUSTRATED · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY

AT

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (8 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 82 No. 20 FRIDAY, MAY 18, 1945

CONTENTS

	PAGE
Editorial Notes	485
"A Certain Amount of Gradualness"	487
Post-War Development of Cardiff	487
French Railway Problems	488
Letters to the Editor	489
The Scrap Heap	492
Overseas Railway Affairs	493
Standard Military Railway Bridges—4	494
Recent Signalling Developments—1	495
"Merchant Navy" Class Locomotives, Southern Railway	498
Personal	499
Transport Services and the War—294	502
Stock Market and Table	508

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers in Great Britain cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions. Orders for overseas destinations can now be accepted

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Returning to Free Enterprise

AS victory in Europe recedes into the background, problems of rebuilding our own national life and of bringing order and peace to Europe become increasingly important. Mr. Oliver Lyttelton, Minister of Production, stated recently that peace production should start immediately, and that this would be possible because of releases from the Armed Forces. Over the next four years, Mr. Lyttelton said, our problem would be getting production to meet needs, rather than finding work to do. He added that the Conservative Party, for which he was speaking, believed in positive action in a policy of full employment, but did not believe in continuing a system of State control. It was pledged to a vigorous export policy and to the extension of trade within the Empire, and the further development of our Colonies. Above all, he believed that free enterprise was essential to prosperity. The rôle of the State was to create conditions in which the experience, and knowledge, and personal risk of the individual could work for the benefit of all. The State could not replace this individual skill. Controls should depend on whether the things controlled were scarce. If they were not scarce, there should not be control for control's sake.

The late Mr. H. L. Thornhill.

By the death on May 9 of Mr. H. L. Thornhill, Chief Legal Adviser, 1927-39, of the London Midland & Scottish Railway Company, there has passed from among us one who by his skill and courtesy well upheld the high traditions of the legal department of a great railway. He will be very greatly missed by all with whom he came in contact. Mr. Thornhill's legal career began with his being articled in 1894 to the late Mr. C. H. Mason, then Solicitor to the former London & North Western Railway Company, and he spent his whole career in the service of this great company and its successors. In 1903 he became Parliamentary Assistant, at a time when the Parliamentary work of a railway, involving constant attendance in the Committee Rooms in the promotion of and opposition to Bills affecting a company's interests, was a matter of much more importance in the policy of chief railway officers than it has since become. To Mr. Thornhill's Parliamentary duties were added an extensive experience of Railway & Canal Commission practice and the problems of railway rates. In 1920, after a visit to the United States, he gave evidence before the Rates Advisory Committee on behalf of the Railway Companies' Association with reference to proposed changes in railway law. He became Solicitor to the company in March, 1921, and continued to head the department through the various grouping changes and enlargements that produced the present L.M.S.R. His title became Chief Legal Adviser on January 1, 1927, at the time the post of General Manager was abolished and the executive control of the company's business was vested in the President of the Executive, assisted by four vice-presidents, the secretary, and the company's legal adviser.

Inland Transport in Europe.

It has been announced officially that an agreement was signed on May 8 by the representatives of Great Britain, the United States, Belgium, France, Luxembourg, the Netherlands, and Norway establishing a Provisional (Western) Organisation for European Inland Transport. The ultimate purpose, as we have recorded previously, is to establish the European Central Inland Transport Organisation capable of advising and guiding the Governments of all the United Nations on the problems of co-ordinating the movement of international traffic and rehabilitating the surface transport system of all Europe by railway, road, and waterway. In view of the cessation of hostilities in Europe, the above-mentioned Governments have agreed among themselves to bring provisionally into force in respect of the territories in western continental Europe under their authority and control the agreement of all the United Nations (still in draft form). This provisional organisation will also give any assistance which may be desired by those Governments who are taking part in the full conference but are not signatories to the agreement of May 8. The composition of the provisional executive committee is given in our Personal columns this week. Discussions on the draft agreement will proceed, and it is hoped that it will be possible soon to complete the agreement and to bring into full operation the European Central Inland Transport Organisation.

Deloittes and the G.W.R.

Deloitte, Plender, Griffiths & Company, chartered accountants, whose name is a household word all over the world, celebrate their centenary this year. The firm always has had close professional association with transport and in the case of the Great Western Railway this association has been continuous for 96 years. As long ago as 1849,

four years after the establishment of the firm, Deloittes first acted in the capacity of professional accountants to the G.W.R. stockholders' Auditors. Hardly less remarkable than the duration of the business relationship itself has been the long association within it of certain outstanding personalities. Lord Plender, pre-eminent in his particular sphere, and distinguished also in his government, civic, and charitable services to public life, where his exceptional qualities of mind and character were devoted to the general good, long had been directly concerned with the G.W.R. Audit before his appointment as an Auditor of the company more than twenty years ago. Mention too must be made of the late Mr. A. W. Air, whose contribution of good counsel and goodwill, based, as it was, on a unique experience and a most pleasing personality and extending over most of his long professional career, did much to create a tradition of great value to both sides—the "firm" and the "company."

Future of Rhodesia Railways

It was explained in a statement issued on October 1, 1943, that the Government proposed to appoint a Commissioner to advise on the proposal for the joint acquisition by the Governments of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate of an option to purchase the share capital of the Rhodesia Railways Limited. Sir Harold Howitt, D.S.O., M.C., as recorded on our "Personal" page has been appointed to advise on the matter. The statement pointed out that the Government had had under consideration a proposal made by the Southern Rhodesia Government that the principle should be accepted of the desirability of the Governments of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate obtaining control of the railway system in their territories and to this end ascertaining the basis on which the three Governments could jointly acquire an option to purchase the share capital of Rhodesia Railways Limited. The proposal that the three Governments should purchase the equity in the railway company raises important financial and economic issues and the British Government does not feel that it is at present in possession of sufficient information to form a final opinion on the whole question as it affects its interests in Northern Rhodesia and the Bechuanaland Protectorate. For this reason the Commissioner has been appointed to advise on the issues involved.

Compulsory Reduction of U.S.A. Train Mileage

To effect a compulsory reduction in train mileage in the United States, two drastic instructions have been issued by the Office of Defense Transportation. The first, General Order ODT 47, issued on January 11, required the railways immediately to discontinue all passenger trains operated merely to provide seasonal service to any holiday resort or recreational area. Included in the same order was the second instruction, effective from March 1, requiring the railways to discontinue the operation of all passenger trains in which the occupancy of seating was less than 35 per cent. during the month of November, 1944. It is added that the second instruction does not apply to mixed trains nor to suburban or inter-urban services. The railways in the Eastern Region have claimed immediately that this second order requires clarification. A representative of the Jersey Central has asked what is to happen, say, to a train running between New York or Jersey City and Philadelphia if it is filled to capacity at the two ends of its journey, but falls below the prescribed 35 per cent. seat occupancy intermediately. Another point that might well be raised is that reduction of the number of coaches in a train in most cases could raise the seat occupancy percentage without difficulty from 35 to something considerably higher. The Director of the O.D.T. holds that the order should eliminate many branch line workings, and should result in a substantial saving of coal, which is its main purpose. But it would seem that the matter requires a good deal more detailed investigation than it appears to have received as yet, and more precise definition of the trains involved.

C.T.C. and British Operating Conditions

In our May 11 issue Mr. F. Horler referred to our comments on a letter dealing with the possibilities of centralised traffic control and our remarks about block telegraph working. We do not consider C.T.C., as such, necessarily unsuited to conditions here, at least on some sections, and would welcome a trial of it. There is a tendency in some quarters to dwell on the extent to which it is being applied in America and to infer that our railways are behind the times in not adopting the same equipment. Our block telegraph regulations are something more than a means of offering and accepting trains; they are a well-codified set of rules, based on long experience in operating our classes of traffic over our layouts and developed to cover working in bad fogs and other contingencies. An American dispatcher frequently will have two trains—and fast ones at that—approaching a meeting or fouling point under conditions to which no traffic officer in this country would ever agree. He does not have to worry about fog conditions, as we understand them, nor has he our goods trains without continuous brakes. If, moreover, anything goes wrong with the C.T.C. working, he can continue to move traffic under the Standard Code and train orders, which are second nature to every American railwayman but would not be acceptable here. The actual control of a section of line from a central point is not to be objected to in itself, merely from the point of view of safety, but we feel that if our English lines are to have any C.T.C. it will have to be arranged to take account of principles and conditions that do not, partly because they need not, command any particular attention in America. We admire very much what has been accomplished there in producing apparatus to meet the requirements but think that our operating officers will have some others to put forward if anything similar is to be taken up here.

The Possibilities of Modern Signalling

It is generally admitted that the cessation of hostilities in Europe and the return of something approaching to normal conditions will call for the application of the latest scientific knowledge and most approved practice to the development of our railway system in fitting it for the part which the future welfare of the country requires it to play. It is known that amidst all the distractions and anxieties of the last five years this need has been recognised and considerable thought been given to meeting it, both by railway and government officers. Plans have been considered for effecting a general improvement in the various branches of railway equipment, with the object of providing better facilities for all classes of traffic when our industries are free to turn once more to their ordinary tasks. There is little doubt that a raising of the average speed of a great number of trains is in contemplation, with the fitting of improved braking to freight trains, the rebuilding of the older station layouts, wherever possible, and an extension of electrification to sections suited to it. On another page is the first of a series of articles on recent signalling developments and some indication of their application to post-war needs.

A Development in Cab Comfort, Southern Railway

In the latest locomotives of the 4-6-2 "Merchant Navy" class, Southern Railway, a notable advance has been achieved in the comfort of the cab, as shown in the illustrations elsewhere in this issue, for which we are indebted to Mr. O. V. Bulleid, Chief Mechanical Engineer. The cab side-sheets are turned inwards for about 12 in., at the back, so forming shielded recesses on both sides of the cab for protection from draughts. In the upper part of these shields are glass windows, in a position roughly corresponding with those in the front spectacle plate of the cab, and intended to be used in conjunction with a similar pair of windows on the front plate of the tender. With the modern high-capacity tender it is impossible to see over the coal space towards the rear when the engine is running in reverse, and the only view of the track to the rear that the enginemen normally can obtain is by leaning through the cab side windows, or through the space between engine and tender. Even this is restricted by the high tender side-sheets. In the new "Merchant Navy" tenders the coal space has been narrowed sufficiently to give the crew an excellent look-out to the rear between the coal space and the curved tender side-sheets. From his working position the driver can thus see through both the cab rear window and the tender front window, which are in line, to the track beyond the tender, if the engine is running in reverse, with considerable advantage to safety of operation; at the same time he is completely protected from the weather. The front tender windows are hinged, so that the space between the coal space and the tender side-sheets may be used for the stowage of fire-irons. With this admirable provision for rear-end view, it has been possible to build the front plate of the tender to the full height of the cab, giving unusually thorough protection from weather for the crew.

Locomotive Feed-Water Treatment Economies

It is calculated by the Water Service Engineer of the New York Central System that that company is saving more than $2,500,000 annually as a result of the completeness of its locomotive feed-water treatment precautions. At 253 different points on the system feed-water is now treated, by means of 34 lime-soda softeners, 78 liquid proportioners, and 141 by-pass feeders using compressed chemical compounds. If account be taken of the indirect benefits, such as the extension from 6 to 30 days of

the intervals between locomotive boiler washouts, over 100 per cent. increase in the average time between complete locomotive overhauls, and the reduced costs of boiler maintenance, the total accrued economy is probably considerably greater than the sum quoted. It was in 1924 that an investigation was undertaken to determine which water supplies required treatment; the terms of reference included the type of softening required, the estimated cost and the expected economy. To that date, a few lime-soda plants had been installed on certain divisions, where water conditions were very bad, but water-treating practice varied considerably in different areas, and was often confined to individual treatment in the tender tanks. Lime-soda softening is used for very hard water, or for less hard water that is required in very large quantities; liquid chemical proportioners or by-pass feeders are installed where the estimated savings would be too small to justify the cost of the more elaborate equipment. Treating facilities are so arranged that the prescribed chemical changes are made on a time basis, and only the lime-soda plants need the full-time services of an attendant.

"A Certain Amount of Gradualness"

THE immediate annulment of a number of Defence Regulations rendered obsolete by the cessation of hostilities in Europe has been welcomed warmly by the public, particularly as precedence appropriately has been given to the cancellation of those restrictions on the liberty and movement of persons which are so prized by a democracy. With commendable promptitude also, the passive air defence measures, lighting restrictions, and regulations governing the lighting in trains have been cancelled, and the restoration of the basic petrol allowance for private motorists has been accepted gratefully as a first instalment of future favours.

The rapidity with which these various reliefs has been afforded has led to a demand in certain sections of the Press for the provision of adequate rail travel facilities for holiday-makers during the coming summer months, because so many workers with their families will desire to take a holiday now that the war in Europe has ended. Such a desire is only natural and, in normal circumstances, the railway companies would encourage such travel by every means in their power, including the provision of a wide range of cheap travel facilities and many additional fast trains, with restaurant cars, to favourite resorts.

Unfortunately, however, circumstances are still very far from normal so far as the railways are concerned and, to borrow the phrase used by Sir Ronald Matthews at the annual meeting of the L.N.E.R. stockholders earlier this year, the public must realise "the inevitability of a certain amount of gradualness" in connection with the restoration of passenger train services and facilities.

The railways are likely to be under the control of the Ministry of War Transport for at least two years yet and therefore they are not free agents in the matter of providing facilities for holiday travel. They are rightly required to give precedence to the movement of Service personnel and equipment and, notwithstanding the end of the war in Europe, the leave and demobilisation arrangements and the maintenance of large armies of occupation on the Continent are likely to throw a very heavy burden on the railways for many months to come.

So far as locomotives are concerned, the railways now possess slightly more engines than they did at the outbreak of war, but a large number of these normally would have been condemned, as they have exceeded their economic life. Further, because of the inability of the railways to secure adequate skilled labour for their running sheds and workshops, the general condition of their engines is greatly inferior to their pre-war condition. The effects of over five years of intensive use, aggravated by the reduced standards of maintenance and repair, are becoming more evident daily in the increasingly large number of engine failures *en route*, which naturally have an unfortunate effect on railway operations generally.

The position in regard to passenger coaches is even more unsatisfactory, as the present stock is between four and five thousand vehicles less than it was in September, 1939. This is due to a variety of causes, of which the most important is shortage of skilled labour and materials. Practically no new passenger vehicles have been built during the war, and the number under and awaiting repair is greatly in excess of the pre-war figure. A substantial number of coaches has been sent overseas; a much larger number utilised for the formation of ambulance trains and other Government purposes; and many have been destroyed or damaged by enemy action.

It will be seen, therefore, that the ability of the railways to meet what may well be an unprecedented demand for travel during the summer months will be governed largely by the extent and speed with which the requisite skilled labour can be allocated to them. As matters stand, it is a reasonable assumption that the words "comfort" and "long distance" railway travel will not be synonymous during the next few months as the railways simply have not the stock to meet the expected peak demand.

Then in addition to the foregoing difficulties the condition of the permanent way would effectively prevent any approach to pre-war speeds this summer, a factor which vitally affects track capacity and consequently the number of trains which can be run. There is no likelihood of any cheap fare facilities being introduced below the level of the monthly return ticket rate. If the Ministry of War Transport allows any restaurant cars to be run, doubtless they will be comparatively few in number and confined to very long-distance trains.

Although within the limitations of their available rolling stock the companies naturally will do their very best to meet the requirements of the general public, it should be realised that their activities in this respect are subject to the control of the Ministry. In this connection we understand that the Ministry has not only limited the mileage which can be run but has decreed that any relief trains which the railways run must not be advertised in advance, but only arranged on the day of travel when it is seen that the number of passengers cannot be accommodated in the booked services. This, we reiterate, causes unnecessarily early arrivals and subsequent congestion at the main termini and prolonged waits and consequent discomfort for passengers, a large number of whom are children.

We feel that the interest of the public would best be served by allowing the companies which, after all, have had many years of experience of dealing with holiday traffics, to advertise relief trains well in advance of the day of travel, and we trust that before the summer action will be taken along these lines. Finally, passengers can avoid some of the discomfort of overcrowded trains if they arrange to take their holidays in months other than July and August when travel generally is as its peak.

Post-War Development of Cardiff

A VERY interesting and comprehensive report has just been published by the Cardiff Chamber of Commerce dealing with the post-war development of the port of Cardiff, which includes the ports of Penarth and Barry. The name of Cardiff for many years has been synonymous with the Welsh steam coal export trade and Cardiff for long has been pre-eminently a coal shipping port, but comparatively little general cargo trade passed through the port. The report states that the reason for this is that, before the war, the general cargo trade of the country, both import and export, was concentrated almost exclusively on a few ports, the principal of which were London and Liverpool. The cargo-liner companies and traders using these ports had built up their traffic conditions, arrangements, and connections in these areas over a series of years to such an extent that there was little opportunity for other ports to obtain any appreciable share of the business, no matter how well they were equipped.

The war, however, necessitated a vast diversion of shipping and general cargo traffic to the west coast and South Wales ports, for strategic reasons, and also to meet the requirements for the many Government factories situated in South Wales. As the result, the port of Cardiff was required to deal with very heavy tonnages of general cargo traffic, both import and export, and has amply demonstrated that it can deal with every sort of commodity and compare favourably with any other port in the country for the discharge and shipment of such cargoes. It is not surprising, therefore, that the Cardiff Chamber of Commerce is seeking to obtain the continuance of at least a share of this trade after the war. Its report recommends that as Cardiff proved to be such a paramount necessity during the war, and no Port Authority can provide an efficient and economic service unless its facilities are worked on a parity with other ports, the Government should be urged to see that sufficient traffic is passed through the port economically to justify full working efficiency. It claims as a further justification the fact that Cardiff is situated in the South Wales Development Area.

The Great Western Railway, which owns and has developed the South Wales docks generally to their present very high state of efficiency, is urged to provide equal access to all forms of transport and to introduce such a schedule of rates and charges, together with a system of rebates, which will make Cardiff comparable with other main ports. On the latter point we recollect a pledge given by the company at the time of the amalgamation

to the effect that it would endeavour to hold the balance evenly between the various South Wales ports. Were it possible to accede to the request for an alteration in the present Cardiff rates schedules—as to which we have no knowledge—we imagine that other South Wales ports would expect similar treatment. Shipping companies are also urged by the Chamber to provide exporters and importers with privileges similar to those provided by them at other ports. We have no doubt that the interests concerned will study carefully these various requests, but doubtless other ports can, and probably will, put forward an equally forceful plea for the diversion of additional traffic. The efforts of ports to develop new business are to be encouraged, but to what extent the nation will benefit from any diversion of traffic from well-established routes where ample facilities have been provided to other routes where presumably additional facilities will require to be provided, is a very open question and raises a point of fundamental principle.

French Railway Problems*

FRENCH recovery after times of difficulty, even after national disaster, has set an example to the rest of the world. Indicative of such recovery we note the production, only six months after D-day, of a 500-page book on the commercial operation of the French railway system. This well illustrated volume serves not only as a reminder that French railways are operating again, but it records the high state of development to which they had attained before the outbreak of war in 1939. The work is by M. René Bourgeois, Chief Engineer of the French National Railways Company, the S.N.C.F., which was formed in January, 1938, to control the whole of the French railway system.

The first section of the book deals with the various commercial problems that have to be solved in railway operation. In the first chapter the part played by public requirements in the operation of the railways is discussed. An analogy is drawn between the control retained by the French Government over its railways through the S.N.C.F. and that exercised by the Governments of Great Britain and the United States over their respective systems. The jurisdiction of the Railway Rates Tribunal, for example, is compared with the "specifications" of the S.N.C.F. Reference is made to the important agreements of June 28, 1921, and August 31, 1937.

In the second chapter considerable space is devoted to considerations of the cost price of various commodities in fixing railway tariffs for different classes of traffic. The important, if vexed, question of transport co-ordination is dealt with at considerable length in the third chapter. Co-operation as between various railway systems is discussed, together with the co-ordination of rail, road and water-borne traffic. Coasting traffic, road-rail traffic and the part played by the air routes are dealt with on their respective merits.

The second part of the book, beginning with Chapter 4, covers French freight traffic from many different points of view. Included in the fourth chapter are a number of tables setting out traffic returns and other statistics for certain years between 1913 and 1938, together with those for the year 1943. In this chapter also is given an insight into the remarkable development of door-to-door traffic on the French railways. The employment of trailers has been highly developed in France and a full description is given of the various types of road trailer which, after transport by rail on flat wagons, are attached to special haulage vehicles for final delivery by road.

In Chapter 5 some fifty pages are devoted to the important matters of freight traffic "à petite vitesse," which may be freely translated as "goods traffic" as distinct from the "grande vitesse" or express goods traffic dealt with in the next chapter. Traffic returns for certain years between 1913 and 1943 provide a guide to the trend of development during that period. As to goods traffic in general, it is pointed out that in August, 1939, the S.N.C.F. had 473,000 wagons in service, including some 33,500 special-duty vehicles of various types. Included in this special stock were no fewer than 11,600 cask or tank wagons for the French wine trade. Petrol and oil tankers numbered 7,000; there were also 3,300 tank wagons for the carriage of tar, molasses, bitumen and potash. The chemical industry had 2,200 tank wagons available. In addition, 400 tankers were in service for the transport of compressed or liquified gases. High-capacity mineral wagons numbered 7,000 and about two-thirds of these were fitted with self-discharging equipment. Refrigerator vans at the disposal of the S.N.C.F. totalled 1,100 but in addition about 2,700 were operated, on a rental, by the French Transport & Refrigerator Company. A further 400 flat wagons were in use for the transport of heavy loads, with an additional 500 special wagons for the conveyance of provisions of various kinds.

The use of containers for freight traffic is dealt with at some length. It is pointed out that containers were used in the United States as early as 1917, and their numbers had grown to some 20,000 by 1939. British railways began to pay attention to the use of containers about 1926 and by 1939 some 13,000 were in service. In Europe, as a whole, the use of containers was first given consideration about 1930 and special rules were laid down by international agreement, applicable to containers made after January 1, 1937. Under these rules containers were classified under two groups—the large type, of between 4 to 16 cu. yd. capacity and a smaller type from 1 to 3 cu. yd.

Express goods traffic in France is dealt with on a very wide basis in Chapter 6. The freight covered under this heading ranges from small parcels, including postal packets, to refrigerator traffic and the carriage of live animals. A table in this chapter discloses that the receipts for express goods traffic in 1938 amounted to 1,883,830,000 francs, in respect of 4,730,000 metric tons of freight. The number of cattle transported by rail in 1938 was 4,207,000. The figures given for refrigerated traffic provide some interesting, if grim, contrasts between the years 1938 and 1942. For example, milk transport for 1938 totalled 307,000 tons—for 1942, only 174,500 tons. For fish transport the figures are 120,000 tons in 1938 against 66,000 tons in 1942. The above and following figures are in metric tons.

The problems of charging for goods consigned on through service are as apparent in France as elsewhere, and this somewhat complicated question is dealt with in the last chapter of Part 2 of the book. The extent of this traffic can be deduced from the following figures. Before the war France handled annually 7 million tons of oil imports from Germany, Belgium and the Low Countries; 250,000 tons of fruit and vegetables from Spain, Italy, Belgium and the Low Countries; 300,000 tons of cattle food, chemicals, wood pulp and china clay from Germany, Belgium or Switzerland. On the export side were 10 million tons of minerals for Germany or Belgium; 500,000 tons of coal for Switzerland or Italy; 200,000 tons of metal ores for Germany, Italy and Spain; and 150,000 tons of cereals, fruit and vegetables for Switzerland, Belgium and other countries. In addition to this traffic, large quantities of goods were handled in transit across France.

The third section of the book, beginning with Chapter 8, covers the ramifications of passenger traffic and the conveyance of luggage. This chapter contains a number of tables illustrating the development of French passenger traffic from 1913 onwards, including the year 1943. The importance of local traffic is stressed and among the figures tabulated are those for the suburban services of Paris. In 1938 the number of passengers in the Paris area was 249,531,000 with a further 290,358,000 for suburban districts in other parts of France. Some rather curious results are shown in a double table that includes personal luggage and dogs. In 1913, 1,393,000 tons of luggage were carried, earning fr. 27,258,000. In the same year canine passengers numbered 1,904,000 for a return of fr. 1,606,000. The figures for 1938 read: luggage 358,000 tons, earning fr. 83,786,000, and although the number of dogs carried decreased to 494,000, receipts had risen to fr. 5,485,000. The final chapter, comprising the fourth part of the book, deals in detail with the organisation and commercial function of the S.N.C.F. There is a useful index and a paginated list of contents that greatly facilitates reference.

The photographic illustrations are a valuable feature of the volume and give a vivid impression of French railway operation as it was and as it will, no doubt, become again. The first illustration is of the famous road-railer—the motor coach on rails—and details of the wheel arrangement are shown clearly. Subsequent pictures show the various types of trailers in use and the methods adopted for their transport by rail. Some of the trailers are of the tank type. The handling of parcels traffic is illustrated under a variety of different conditions. Special-duty trucks and trains of high-capacity self-discharging wagons are also included. The different types of containers illustrated, some on wheels, provide a series of contrasts in methods of freight handling. Pictures of double-decked cattle trucks are also included, together with a number of illustrations of special milk tankers and milk-handling plant at the Paris-Austerlitz station. A number of interior and exterior views depict various aspects of refrigerated traffic. There is also a number of excellent illustrations of French expresses.

* L'exploitation Commerciale des Chemins de fer Français, by René Bourgeois. 10 in. × 6¼ in. 460 pp. 40 plates. Published by Editions Léon Eyrolles, 61, Boulevard Saint-Germain, Paris. No price stated

The British Billion

AT the present time when influences rising from the war have caused a great intermingling of members of the United Nations—indeed the progress of the war has broadened this trend to include enemy and ex-enemy nationals—there may arise a danger of confusion from lack of appreciation of differences in nomenclature or enumeration. Dealing with railway statistics in this country and the United States, it would seem from correspondence we have received that to some, at least, the frequency with which " billions " is used in American publications has led to an element of confusion. Why this should be, we confess is not very clear to us, for the practice in these matters has been so well and widely laid down that it seems strange that any person whose business or interest might lead him to study railway statistics, either American or British, should not be conversant with a practice which has obtained in this country since the sixteenth century. The word itself was coined in France to denote the second power of a million, and it has retained without break this meaning of a million millions in Great Britain and in other countries, including Germany and our ally Russia, to this day. In France and the United States, however, it has come to mean a thousand millions. It is generally accepted that the American usage has been based on the French, but Great Britain, Russia, and even Germany, at least in this instance, can claim a common purity of derivation.

In this country, for reasons which no doubt seem good to it, *The Economist* has adopted the American or more correctly the French usage of the word. It has published letters from some of its readers disagreeing with this practice, and suggesting that it could only be confusing. The chief reason for the change, *The Economist* explained on November 18, 1944, was the frequency with which the word was used in America in its smaller sense and the possibilities of confusion if every American statistic had to be translated. At the same time it pointed out that " there is no certain way of avoiding confusion," and added a little later that " the whole matter illustrates the difficulties that arise as soon as civilisation in the deluded pursuit of pedantic accuracy departs from the African native's simple numeration 'One, two, three, big number '."

In a technical paper the pursuit of accuracy, more especially in statistics, measurements, and figures of all kinds, must be unrelenting. It is for this reason that *The Railway Gazette* has adopted the practice of expressing American billions as so many thousands of millions. In this, indeed, we seem to be in good company, for the Chancellor of the Exchequer, in his Budget statement and in his explanatory discourse to the nation by wireless on the night of Budget-day, consistently spoke of thousands of millions. Indeed, it may be recalled that as long ago as April 22, 1941, the Prime Minister was asked in the House of Commons whether, in view of the possibility of confusion arising from differences of meaning of the word " billion " on the two sides of the Atlantic, and also because of the new economic intimacy developing, he would confer with the Governments of the United States and Canada, so as to obtain uniformity in the matter. The Prime Minister, who has given ample evidence of his wide knowledge of the meaning of English words and their usage, was not to be led so easily into even so fragmentary a debasement of his mother tongue. He acknowledged the different or alternative meanings of the word on the opposite sides of the Atlantic, but he felt that this had led to no difficulties in accounting. He abandoned nothing when he added, typically, that " for all practical financial purposes a billion represents one thousand millions, especially in the case of anything we owe."

It seems that there is no easy way out for those who do not understand or bear in mind the differences in usage of these and other words by various countries, but equally there is no good reason why lack of appreciation of the meaning of words should be spread because of a desire to avoid the trouble of translation. That might well be deemed one of the functions of authorship, and it will be a poor day when it is customary to adopt an overseas meaning of an English word, as a means of avoiding the bother of rendering accurately statistics or weights or measures. Already other instances of the need for care in dealing with words of unlike meaning at home and abroad, arise in the usage of tons, where it is often necessary to differentiate between the United States short ton of 2,000 lb. and the British ton of 2,240 lb. and even of the metric *tonne* of 1,000 kilograms. The failure to appreciate and make clear differences of this kind shows not only a lack of appreciation of the importance of meanings of words, but a lack of responsibility to those for whom they are written.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

Re-Absorption of Railway Staff in Forces

Derby. May 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to the letter from Colonel Spillard in your issue of April 27 and your comments on the question of the re-absorption of Forces personnel; first, it does not necessarily follow that rapid promotion or high rank in the Army is indicative of administrative excellence or of any other virtue which might be utilised in railway work. Promotion may be earned or it may be " pre-fabricated "—many an unworthy spirit flutters beneath a red tab. Each case can properly be judged only on its merits.

Secondly, your comment suggests that service in the Forces takes a railwayman away from the practice of his normal employment. This is not always true, since an appreciable number of Big Four employees have served during the war in the Transportation Units, R.E. on railway construction, maintenance, operating or workshop duties. The better of these personnel have seen considerable overseas service in positions of far greater responsibility than they occupied at home. The additional experience so gained is a factor of some value and should not be allowed to rust for lack of use.

Finally, those of our railway staff who have remained, voluntarily or not, on the Home Front, have performed essential work. They have in some cases received permanent promotion during the absence of their fellows in the Forces. The latter may now arrive back to find that posts which they could adequately fill have been already occupied by those who were their juniors when hostilities commenced.

It remains for managements to hold the scales with a strict impartiality. It would be unfortunate for the country, and for the railways, if it became established that Armed Service constituted a serious handicap to normal railway promotion.

Yours faithfully,

WYVERN

Bogie Oscillation

Oxford. May 5

SIR,—You have devoted considerable space recently to the question of bogie design, and in your issue of February 23, under the heading of " Brake Snatch," there was an interesting letter on the same subject, although the writer of it should have entitled it " Bogie Oscillation." The trouble which Mr. Coxon described therein is very prevalent on British railways and oftentimes causes much alarm to the passengers—the noise of swinging brake rigging also helping to create further unpleasantness.

The problem of bogie oscillation cannot be attributed to any lack of proper maintenance arising from wartime conditions, for it was in evidence long before the war. The interesting point, however, is that one can remember designs that originated before the grouping in which oscillation was entirely absent and to emphasise this point I would refer to your footnote to the letter from Mr. Langford Lewis on page 318 of your issue of March 30, where this statement is made—" the 65-ft. dining and sleeping cars built by the L.N.W.R. many years ago, probably the handsomest and most comfortable stock ever designed in Britain."

We are therefore faced with the implication that the considerable expenditure on research has not resulted in the production of bogies equal in performance to those of former days, nor has the problem of silent brake rigging been overcome. This was further confirmed to me a short time ago by one of our foremost carriage and wagon engineers, who stated with assurance that bogie design had retrogressed since the grouping.

In view of the railway companies' declared policy of providing better trains and speeds up to 80 miles per hour in the near future, then the design of bogies will need to be one of the first considerations, for it cannot be said that a good standard exists on the most modern coaches.

Yours faithfully,

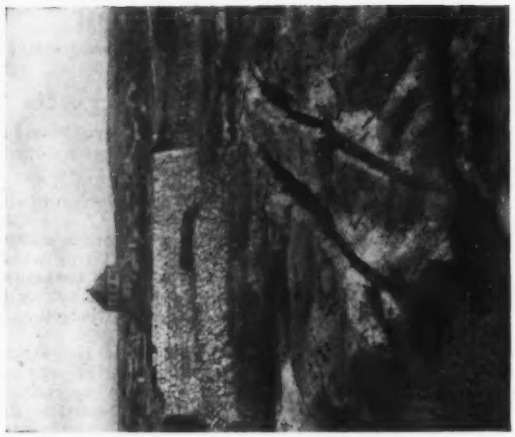
T. LOVATT WILLIAMS

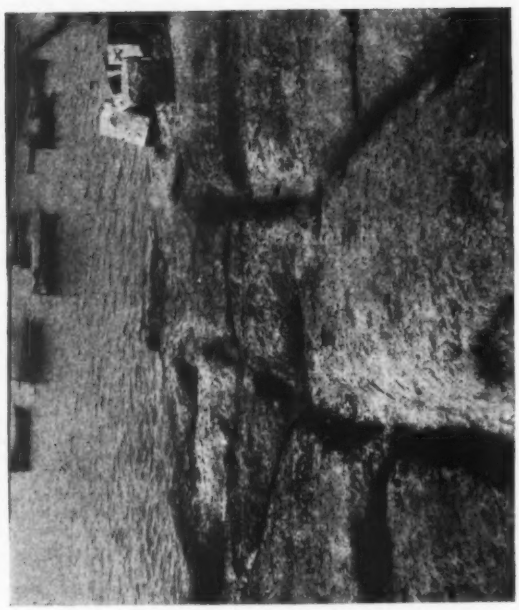
Couplers for Passenger Rolling Stock

London, S.W.1. May 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Dow's letter in your April 13 issue was both interesting and informative. But are we not slightly at cross purposes? I gained the impression that he is anxious to demonstrate the superior safety factor of the buckeye coupler and Pullman vestibule compared with that of side buffers and couplings. But





Left: Reproduction of a photograph taken by Major W. L. Sparkes early in 1939, near the high cliffs facing the African coast, showing two parallel rutways. Middle: A rutway in Malta going down to the sea. Right: Ruts in the centre of the island, clear cut and deep

I would be the last to gainsay this. Unless arranged in the Argentine fashion, even the best of centre-stem side buffers, under a heavy impact and given a slight inequality of centres, will bend on their shanks and thus guide one frame over another.

But are couplers and Pullman vestibules in themselves a full answer to telescoping? In China the answer is: "No," and anti-telescoping posts and beams are provided to supplement an arrangement exactly similar to that of the L.N.E.R. The view is that although damage is bound to occur in accidents at high speed, telescoping is not.

Mr. Dow remarks that couplers and Pullman vestibules remain standard on American railways, even on new light-weight stock. In principle this is so, but the type-D coupler, similar to the buckeye-type standard on the L.N.E.R. with a 9-in. knuckle depth, was displaced as standard in 1932 by the type-E coupler with an 11-in. knuckle depth; it had this two valuable extra inches of clutch. And the type-H "tightlock" coupler lately has been developed having, in addition to the 11-in. knuckle and other improvements, spigots and sockets on each side of the coupler head, which prevent the vertical movement of one knuckle within another, already pointed out as the weak feature of the M.C.B. (buckeye) coupler. In addition to this, reference to the drawings will show that these light-weight cars, in general, are fitted with an arrangement almost identical with the anti-telescoping posts and beams originally recommended.

Yours faithfully,
KENNETH CANTLIE

Rutways and "The Evolution of Railways"

"Westwood," Sylvan Road,
Exeter. March 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with great interest your publication, "The Evolution of Railways" by Charles E. Lee, and was very intrigued to see, on page 4 on the 1943 edition, a picture of the "ruts" carved in the solid stone or rock, which are described as "the remains of a wagon rutway near Syracuse in Sicily."

I have been twice stationed in Malta, and there are innumerable traces of such "ways" there. The rock of Malta is similar to that of Sicily; non-volcanic though. The gauge is about 4 ft. 6 in. The ruts are from 2 in. to 8 or 9 in. deep. The following facts may interest you.

1. Near our camp between St. Paul's Island and Pembroke, there is a veritable junction of them, several "tracks" coming in from different directions, with "points" joining them, and for 40 or 50 yards, tracks running parallel to one another about 3 feet apart. Now, this might be a market place. This junction I saw when stationed in Malta, 1929; it is within 300 yards of the sea, on the north coast facing Sicily and within 2 miles N.E. of St. Georges Bay. Near-by tracks run down to the sea, and I have swum out 200-300 yards, and they are clearly visible going on towards Sicily. The rocks here slope gradually down to and beneath the sea.

2. To the northern end of Malta, again, there are several traces of these tracks. I enclose a negative I took when out there, just before this war, of one of these—two sets actually. Not far from where this photo was taken, the cliffs face west or north-west towards the south of Tunis—where the coast of North Africa runs north and south. The cliffs are anything from 100 to 300 ft. in height, and I have seen these tracks go right up to the cliff edge.

We know Malta was once joined both to Sicily and to North Africa, but probably not at one and the same time. I have seen proof of that in the caves at Ghar Dalam not far from the seaplane base at Calafrana, where there are bones of reindeer—proving that they had come south from the mainland of Europe, and bones of elephants and rhinos—proving that they had come up from the south from Africa. My own interpretation of these ruts is that they form part of an historic "way" on which the Romans based their "Appian Way" which ran southwards from Rome, through Sicily, and had its continuation in the Roman colonies in Tunisia.

How the ruts were made in solid and very tough rock, as shown in your quoted illustration, and in the views I enclose, beats me. Were they worn there by countless vehicles—wheeled or sledges—tracing the same route exactly (note that point), or were they hand-made with tools—no light task in hard rock—for all which I have seen were in very hard rock on which a pen-knife blade made very little impression?

I think all these many ruts in Malta were part of a system of intercommunication over considerable distances. We have seen them both in Sicily and Malta, but I have not heard of their existence in North Africa.

Yours faithfully,
W. L. SPARKES (MAJOR)

Locomotive Cast-Steel Bar Frames

Balbardie Steelworks, Bathgate,
West Lothian. May 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with the greatest possible interest Colonel Cantlie's letter of May 4. It is a well-known fact that one of the main-line railway companies in Great Britain operates a steel foundry, and no doubt if locomotive cast-steel bar frames were considered an economic proposition they would be incorporated in locomotives built by this main-line railway.

Before anyone can answer the three questions summarised by Colonel Cantlie it would be necessary to know what percentage of the locomotives in this country would be built with cast-steel frames, if capacity were available at a satisfactory price. There have been many cases of steel foundries seeking to develop steel castings which are widely used overseas for which there has proved to be no demand in this country. British locomotive practice differs in many respects from Continental and American practice where alternative materials are very readily available in this country.

Yours faithfully,
G. M. MENZIES

A German Comparison of Two High-Speed Runs

Burnside, Beauly
Inverness-shire. March 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In August, 1939, the writer received a letter from the Borsig Locomotiv-Werke, Hennigsdorf, Germany, answering some enquiries regarding the test run made between Hamburg and Berlin with the German State Railway's 4-6-4 streamline locomotive No. 05002 on May 11, 1936, during which a maximum speed of 124·56 m.p.h. was attained.

This letter challenges the comparison made in *The Railway Gazette* of July 8, 1938, between this run and the world-famous record-breaking run of L.N.E.R. "A 4" Pacific No. 4468 *Mallard*. Therefore, I reproduce the relevant part of the letter, exactly as phrased by the German firm, so that readers may draw their own conclusions. The diagram referred to is that which was published in your July 8, 1938, issue, page 79.

"As to your questions regarding the high speed test runs of engine No. 05002 performed between Berlin and Hamburg and reverse, we beg to refer to the diagram annexed to this letter showing a comparison between the run of locomotive No. 05002 of May 11, 1936, and of L.N.E.R. locomotive *Mallard* of July 3, 1938.

"This diagram originating from *The Railway Gazette* of July 8, 1938, page 79, is a cut-out of both test runs drawn in such a way that the two 125 m.p.h. peaks of the speed curves coincide. We prepared this diagram in 1938 when the above-mentioned article concerning the L.N.E.R. speed record appeared. At that time we had the intention of sending this diagram to the Editor, with a commentary stating that the two runs cannot be compared, due to the entirely different gradients of the lines. Later, however, we refrained from writing the letter, although persons who are not skilled in calculating locomotive performances and boiler capacities might believe that the comparatively small L.N.E.R. 'A 4' Pacific type surpassed the heavy '05' engine specially built for highest speeds, as well in speed as in train load.

"Looking at the diagram, you will observe that the Berlin-Hamburg route is rather flat and the line of the L.N.E.R. is situated on a falling gradient of an average of 0·5 per cent. (1 in 200). The actual weight of both trains, including engine and tender, the latter reckoned with two-thirds of water and coal provision, was about the same. The weight of the German train was 130 tons engine, 70 tons tender, 197 tons coaches, total 397 tons. These values for the L.N.E.R. train were: 107 tons engine, 52 tons tender, 240 tons coaches, total 399 tons.

"Regarding the L.N.E.R. train, the inclination of 0·5 per cent. produced, by gravity force, an additional tractive force of some 4,000 lb. and the down grade of 0·56 per cent. and 3 miles length, just behind Stoke Box, an additional tractive force of 4,900 lb. As the 'A.4' Pacific is not able to develop more than about 5,000 lb tractive force at the tender drawbar when running at 120 m.p.h., the propelling force was nearly doubled.

"In comparison, locomotive No. 05002, after a speed reduction to 103 m.p.h., had to accelerate the train on a slight upward gradient of about 0·15 per cent. and 2·5 miles long, followed by a 3·5 miles long down gradient of 0·15 per cent. The remaining part of the line was nearly level. The 0·15 per cent. gradient produced an additional tractive force of about 1,300 lb. to be added to the 5,500 lb. tractive force measured on the drawbar of the tender in the dynamometer car. This tractive force remained constant for 10·2 miles when the train had to be slowed down approaching the suburbs of Berlin. The highest output measured during the acceleration period was 2,400 drawbar h.p. and the average output for 15 miles, 1,700 drawbar h.p., or about 3,100 cylinder h.p.

"During these 15 miles the boiler capacity was 45,100 lb. of steam per hour at 284·5 lb. per sq. in. pressure and 400° C. superheating temperature. As the boiler of the '05' locomotive has a total evaporative heating surface, measured on the fire-side, of 2,760 sq. ft., this means a steam production of 16·4 lb. per 1 sq. ft. an hour.

"Coming back to the L.N.E.R. 'A 4' Pacific locomotive, this engine has a total evaporating surface of 2,576·3 sq. ft. on the water side, and about 2,318 sq. ft. on the fire side. If this engine had the same output as locomotive No. 05002, the boiler must have delivered 22·1 lb. of steam per 1 sq. ft. an hour, *i.e.*, 35 per cent. more than the boiler of engine No. 05002. As the normal limit of sustained boiler output is about 12 lb. per sq. ft. an hour, the great difference between the two high speed test runs, in our opinion, is clearly proved."

In its letter, Borsigs state that the evaporative heating surface of No. 05002 was 2,760 sq. ft. on the fire side and 3,036 sq. ft. on the water side, but in its catalogue the total evaporative heating surface is given as 280 sq. metres, which is about 3,013·9 sq. ft. This figure presumably applies to the water side of the heating surfaces, but which is correct, 3,036 or 3,013·9, I could not say.

The catalogue dimensions of No. 05002 are given below converted to British units.

Locomotive	
Cyls. (3)	17·73 in. dia. × 26·0 in. stroke
Wheels	7 ft. 6·6 in. dia.
Pressure	284·5 lb. per sq. in.
Boiler heating surface	3,013·9 sq. ft.
Superheater heating surface	968·7 sq. ft.
Total heating surface	3,982·6 sq. ft.
Grate area	50·6 sq. ft.
Tractive effort at 85 per cent.	33,052 lb.
Weight—empty	116·7 tons
" in working order	127·8 tons
Tender	
Water capacity	8,154 gal.
Coal capacity	9·85 tons
Weight—empty	39·5 tons
" loaded	85·3 tons.

General particulars of the German engines' runs are as follows:—

Section: Hamburg—Wittenberge	99·12 miles
Running time—total	71·2 min.
" regulator open	69·8 min.
Average speed	82·08 m.p.h.
" regulator open	82·95 m.p.h.
Maximum speed	110·73 m.p.h.
Section: Wittenberge—Spandau (Berlin)	68·98 miles
Running time—total	52·0 min.
" regulator open	48·7 min.
Average speed	83·88 m.p.h.
" regulator open	87·49 m.p.h.
Maximum speed	124·56 m.p.h.

Average travelling speed, Hamburg-Spandau (including 2·5 min. stop due to signals at Wittenberge), 81·15 m.p.h.

Coal consumption was about 52 lb. per mile stop to stop. The highest peak recorded in the course of the trial was 3,400 cylinder h.p.

Yours faithfully,
A. F. FLATTELY

Alternative Wanted for "Enthusiast"

Movements & Transportation,
HQ Land Forces, Greece, C.M.F. April 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was a little surprised to see a letter from me, intended rather for yourself than for your readers, published in your February 23 issue. It was, I suppose, agreeable for you to demonstrate to your own satisfaction, in your note appended to my letter, that some of the doubts that your map had raised in my mind were unfounded. Though I might join issue with you on the interpretation you give to the caption and the evident irrelevance of some of the lines shown to the "Cow Lane incident," I refrain.

But I do beg you to reflect again before labelling me, or anyone else, an "enthusiast." I appreciate that, as you employ the word, it is intended to bear a complimentary, or at least a neutral, significance; but I cannot help remembering Edward Gibbon's aunt, whose "intellect was unhappily clouded by enthusiasm." (The "Autobiography," like *Bradshaw*, is not freely obtainable in Athens just now; I think the general sense is correct, though I can't guarantee verbal accuracy.)

Cannot you, Sir, or some of your readers, find a description of my study and recreation which avoids the derogatory implications, savouring of football matches and religious revivals, that attach to "enthusiasm"?

Yours faithfully,
R. M. ROBBINS,
Major, R.E.

The Scrap Heap

"What's the use of timetables if the trains aren't ever to time?"

"What's the use of waiting rooms if they are?"—*From the "Meccano Magazine."*

* * *

We have used 100,000 paste-over labels between April, 1941, and May, 1945, which of course means a saving of 100,000 envelopes during that period.

* * *

TAY BRIDGE RELIC

The L.N.E.R. has recently added to the collection of railway curios at its Scottish headquarters, 23, Waterloo Place, Edinburgh, an unique walking-stick presented by Mr. J. Lorimer, District Goods & Passenger Manager, Dundee. The walking-stick is a relic of the Tay Bridge disaster in 1879 and was made from telegraph wires cleverly plaited and wound round a steel cane. It was made by John McKay, a labourer employed by the North British Railway at Tayport harbour while the wreckage of the bridge was being salvaged and brought into Tayport. He had been a seafaring man in his younger days, and is reputed at the time to have been about 90 years of age and still employed on light jobs at the harbour. The stick was given by him to Mr. A. Thomson, Stationmaster at Tayport from 1881 to 1889, who in turn passed it on to his son Mr. J. J. Thomson, Chief of the Passenger Manager's Staff Section, L.N.E.R. Scottish Area, who retired from the company's service in 1937 and by whom it was handed to Mr. Lorimer.

* * *

P.R.Os

The people of Britain need to turn their energies to the shattering of the Fortress Bureaucracy, which, if they are not swift, may prove nearly as formidable as any built by Hitler. Mr. Brendan Bracken has breached the first defences; the rampants of his Ministry of Information are tottering. Pockets of resistance still lurk in other Ministries. The Public Relations Officers must be disarmed and demobilised: 109 in the Admiralty, who cost £67,684 each year; 192 in the Air Ministry, costing £112,863; 280 in the War Office, costing £120,000. All in all, there are nearly 2,000 people engaged in this now superfluous work at a cost to the nation of more than half a million pounds.—*From "The Evening Standard."*

FREE TRANSPORT ON V DAY

I offered the conductress my three ha'pence as I got off the bus on Victory Day. She refused it flatly. "I'm not going to take fares. We shall all be sacked next week. Let people have free rides." This seems to me pessimistic, and rather less than honest. After all, collecting fares is what the lady is still paid for. As for me, the Passenger Transport Board can have my money at any time—if they come and get it. Or I might send a cheque. —"*Janus*" *in* "*The Spectator.*"

* * *

WATCHING TRAINS

A correspondent writes that Mr. F. D. Ommanney in "The House in the Park" shows his preference during his early schooldays for watching trains to joining in organised games. In the playground of one of his preparatory schools "above and behind me ran the main line of what was then the South Eastern & Chatham Railway. The engines had brass lips to their funnels and brass domes." These were clearly of Mr. Wainwright's design. The description of this school is—of set purpose no doubt—a composite affair. Your correspondent, however, was at a school in Folkestone, the playground of which gave a clear view of the main line near Shorncliffe in the days when the South Eastern Railway was a separate entity, and he remembers his delight in watching the Continental expresses and the changes in design and colour both of locomotives and carriages introduced by Mr. James Stirling. At a later school a favourite half-holiday occupation of your correspondent was to watch from a bridge for the passing of the up "Flying Dutchman" and the down "Zulu" broad-gauge expresses.

* * *

100 YEARS AGO

From THE RAILWAY TIMES, *May* 17, 1845

ISLE OF WIGHT RAILWAY.—A COMPANY is in course of formation for the purpose of constructing a RAILWAY through and across the ISLE OF WIGHT.

A preliminary survey of the country and investigation into traffic have been made, which justify the expectation that a system of Railway communication can be framed calculated to further the interests and develop the resources of the Island, and to render a liberal return for the capital to be invested, without unduly invading the privacy of propert

The promoters are anxious to give full consideration to parties locally interested; but it is hoped that as the amount of capital required for the undertaking is limited, applicants for shares will confine their claims to such a number as they may desire permanently to hold.

The detailed Prospectus will be published in a few days.

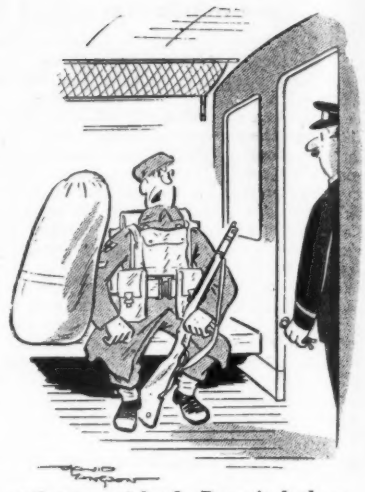
JAMES WHEELER, Solicitor, Manchester.

CHARLES E. DEACON, Town Clerk, Southampton.

May 15th, 1845.

Train Lost in Colliery Subsidence

During shunting operations near Wigan a locomotive and thirteen coal wagons disappeared down the cavity illustrated above, which is on the site of an old mine shaft, 1,200 ft. deep



"Got me ticket? Does it look as though I've got me ruddy ticket?"

[*Reproduced by permission of the proprietors of "Punch"*]

* * *

The Western Pacific Railroad has issued an interesting advertisement addressed to the travelling public, and drawing attention to the fact that the Interstate Commerce Commission's Service Order No. 213 directs that: "Every common carrier by railroad and every sleeping car company shall afford preference and priority in transportation over all other traffic to invalid service men . . . and to the extent necessary . . .

(1) Divert equipment and transportation facilities and supplies from use in freight or passenger service;

(2) Cancel or discontinue passenger train service; and

(3) Refuse permission to passengers, other than invalid servicemen and their attendants to board passenger trains;

(4) Cancel reservations and space assignments, or tickets therefor; and

(5) Cause and require passengers to vacate, prior to departure of a train from point of origin or at any time of the day or night thereafter, the space and accommodations occupied by them."

The advertisement ends: "This means that in reserving accommodations, or purchasing sleeping car tickets, there is no assurance that you will not be asked to give up these accommodations before departure or at any point *en route* in the event they are required for invalid servicemen. We again urge you not to travel unless your trip is essential or in connection with the war effort"

* * *

TAILPIECE

(*Peace in Europe brings its problems for British railways*)

What do I covet most of all
In these glad days of Hitler's fall?
Refurbished station, track and train,
The railways quite themselves again.

I want to see in this new dawn
New coaches by new engines drawn,
Food on the trains as in days gone,
And bright new paint at Paddington.

I want to view the seas and shores
From unimpeded corridors,
And relish through the punctual hours
The country platforms bright with flowers.

E. C.

(But E. C. must remember the Japanese war is still on.—ED., *R.G.*)

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Capetown Foreshore Scheme

Construction work has begun in connection with the foreshore layout scheme and involves the building of premises for the new railway goods yard at Woodstock. The Minister of Transport, Mr. F. C. Sturrock, has nominated Colonel C. H. Hamilton, Port & Shipping Director at Capetown, as Chairman of the joint committee, and as the Administration's four members of the committee he has nominated the following: The Chief Technical Officer (Reconstruction), or his deputy; the System Manager, Capetown, or his deputy, Prof. Thornton White; and Mr. Wolgate, the architect for the new passenger station. This joint committee will meet at least once a month and will submit a scheme for the consideration of the Minister.

Railway Hotels

The Administration has announced that it has appointed Mr. B. St. Clair Lightfoot, of Capetown, as the architect for the Hotel van Riebeek, the railway hotel that is to be built on the reclaimed land near the new passenger station. It is not considered likely that the hotel will be ready for 5 to 7 years.

Repair of Railway Wagons

The workshops of the gold mines of the Witwatersrand are repairing about 100 wagons a month for the Railways & Harbours Administration. By having this work done outside the railway workshops, 5,250 man-hours are being saved every month, according to a statement by the General Manager of Railways.

Locomotives

Five more engines ("15 F" class) were delivered in the Union in February, bringing the total received to 30. The electrical equipment and the mechanical parts of 10 electric locomotives have also arrived from Great Britain.

Goods Traffic

The South African Railways have just emerged from a goods traffic crisis of some magnitude. It is stated that drought in various parts of the country, food shortages in the Native territories, and the large quantities of deciduous fruit, lucerne, potatoes and mealies that had to be moved within a short period accentuated the shortage of wagons and engines. Certain orders for wagons had to be drastically curtailed to meet these urgent requirements of priority goods as fully as possible, and general traffic had to be kept moving at the same time. Each of the nine railway systems asked for more wagons.

The movement of maize to the native areas, particularly Pondoland and the Transkei, where an acute food shortage threatened, was one of the more immediate problems. In February, from four to five extra goods trains had to be run over the East Griqualand branch line every day to get food to the native population. Drought stricken cattle also had to get preference, and 82 truck loads of poor stock arrived at Bulfontein, in the Free State, in four days. Also, 350 cattle trucks were supplied to the Hutchinson-Calvinia section in the last week of February to move poor stock to the Cape Northern and Free State Systems. Orders for the transport of a large number of stock from the area were heavy all through March. In the last week of February, 82,408 trucks were loaded in the Union, representing an increase of 3,607 on the preceding week, and an increase of 3,542 as compared with the corresponding week of last year.

UNITED STATES

The "Twin Star Rocket"

On January 14 last a diesel streamline service was inaugurated by the Chicago, Rock Island & Pacific Railway through the length of the United States, from north to south, between the Twin Cities of St. Paul and Minneapolis and the port of Houston, Texas. This service, over a 1,370-mile route, requires three complete trains; and the necessary coaching stock and diesel-electric power have been obtained by re-arranging the pool from which the "Rocket" streamline services of the Rock Island lines are maintained, so that it has not been necessary to build stock for the purpose (indeed, such construction would not have been possible until now, on account of the complete ban of the War Production Board on coach building).

The new train is called the "Twin Star Rocket," after the "North Star State" of Minnesota and the "Lone Star State" of Texas, which are thus linked. It leaves Minneapolis at 11.30 a.m. and St. Paul at 11.55 a.m., reaching Kansas City at 8.45 p.m., and Houston at 1.15 p.m. next day; returning 3 hr. later, at 4.15 p.m., it is due in Kansas City at 8.30 a.m. on the succeeding day, in St. Paul at 5.45 p.m., and in Minneapolis at 6.15 p.m. The southbound journey thus takes 25¾ hr., and the northbound 25½ hr., requiring overall average speeds of 53·2 and 53·7 m.p.h., respectively.

The new service is additional to those of the "Kansas City-Minneapolis Rocket" and the "Kansas City-Dallas Rocket"; and there are now twice-daily streamline services over the whole route between Minneapolis and Houston.

CEYLON

Operating Difficulties

A recent drought resulted in trains being held up for some days at Colombo because of water shortage at the engine sheds. This delay reacted on the rest of the service, but the situation improved after subsequent rainfall. Difficulty is being experienced by the Ceylon Government Railway in replacing the screw couplings of carriages and wagons and the end doors of bogie low-sided wagons, a large number of which have been lost in recent months. Material for the manufacture of couplings is now scarce and there is little prospect of obtaining supplies from abroad in sufficient quantities. An appeal for old screw couplings has been made by the Railway and a search is being made for these in all railway yards and sidings where they used to be cast away when broken or useless.

Transport Control

The Executive Committee of Local Administration recently discussed the recommendations made by the Director of Transport, Mr. S. W. Nelson, for the post-war development of transport in Ceylon, and considered also the representations made by a deputation of bus interests on the subject. It was decided that the recommendation made by the Director of Transport that both rail and road transport be placed under one Ministry, should not be adopted. It was also decided that the Board recommended by the Director of Transport should be an Advisory Board. Thirty-five bus companies made representations against the proposed post-war development.

Traffic Information

Day-to-day passenger traffic on the Ceylon Government Railway is presented at a glance, in tabulated form, by a device which has been installed in the Control Office, Colombo. Wooden boards on the walls of this office show the formation of a train, the number of first, second and third class carriages it contains, the number of locomotives engaged in the day's work and in what particular stations or sheds they are located, the number of engines undergoing repairs and the distribution of the passenger coaches. All this information is given, in the form of a chart, by the insertion of plugs in the boards, which are studded with holes for the purpose. In the event of an engine failure, for instance, the board indicates which engine could be ordered, with the least delay, to haul a disabled train. The scheme also facilitates the augmenting of overcrowded trains. A special official has been detailed to post up information on the boards.

SPAIN

Railway Reconstruction

According to a statement made recently in the Madrid Parliament by the Spanish Minister of Public Works, the reconstruction of the Spanish railways has progressed favourably during recent years despite difficulties in the supply of materials and labour. Between the end of the Civil War and the end of 1944, 878 new locomotives were placed in service and of these 200 were built in Spain. In addition, 1,281 coaches and 27,491 wagons were added to the existing stock in the same period. Of the wagons, 8,000 had been built in Spain. Also, 200 railway bridges were built and 7,583,000 sleepers were laid. In 1944, the Spanish railways carried 7,437,000,000 passengers and conveyed 9,000,000 metric tons of goods. Compared with 1935 the passenger traffic had been doubled and the goods traffic increased by some 30 per cent. During the period after the Civil War, 2,549 kilometres (1,583 miles) of new track had been built, of which 37 kilometres (23 miles) were in tunnels and 31 km. (19·2 miles) on bridges and viaducts.

Although the improvements covered the whole of the Spanish railways the greatest attention had been paid to the system in and around Madrid. All the more important station buildings destroyed or damaged during the Civil War had been reconstructed or repaired. The electrification scheme for the conversion of 4,800 km. (2,980 miles) of track had been taken in hand, the conversion of the Madrid-Avila line had been completed, and that to Segovia would be finished soon.

SWITZERLAND

Federal Railway Traffic

The railway time table effective from May 7, 1945, to May 5, 1946, comprises, as far as the electrified lines of the Federal Railways are concerned, the re-introduction of a number of fast and stopping trains, the operation of which was discontinued in the autumn of 1941. Additional trains are to be put into service to fill gaps in both the local and long-distance traffic. Also, a number of heavy fast trains, particularly on the Gotthard route, are to be duplicated.

Standard Military Railway Bridges—4

A further note on the British V-type trestling, and brief description of the American demountable V-type railway bridge

American V-type deck-span

IN Part 3 of this article in our issue of April 20 we gave, on page 392, a very brief description of the V-type trestling used for both marine piers and bridgework. An important feature of this trestling is that the bracing members are adjustable in length, covering a range from 3 ft. 6 in. to 15 ft., advancing in increments of a quarter of an inch. This enables the column spacing to be varied to suit all requirements. In addition to its use in forming piers for girder bridges, the V-type trestling can be erected as a railway trestle viaduct. For construction on irregular rocky ground a special slab-foot rock shoe is available in place of the ordinary camel's-foot pad base.

We hope to continue this series of descriptions of British-designed military bridges as soon as further information is released, but meanwhile it is of interest to note that the Americans have produced a design of their own along distinctly unorthodox lines.

It is known as the Demountable V-type Railroad Bridge, and is adaptable for either deck- or through-spans of from 20 ft. to 90 ft. When used to form a deck span the Warren trusses splay out from a single bottom chord member forming a span with a V-shaped cross section, and the sleepers rest on the two top chords. In the through spans, the floor system connects two bottom chord members, and the trusses splay out at an angle similar to that of the deck spans; there is no bracing between the top chords.

In both deck- and through-spans the splaying effect is obtained by the use of special gusset plates bent to the required angle. All connections are made with bolts. As in the British U.C.R.B., the parts are interchangeable, and there are four main parts, the heaviest of which weighs only 400 lb. The V-type bridge is designed to carry Cooper's E-40 loading. We understand from our American contemporary *Engineering News-Record* that this bridge has been developed by the Fort Pitt Bridge Works.

V-type through-span

THE WORKING CHARTER OF THE "RENFE."—On December 29, 1944, the Minister of Labour in Spain approved a working charter for the national railway system, the "Renfe." Copies of the charter have been distributed with *Ferroviarios*, the house journal of the "Renfe." The charter lays down the conditions under which persons are admitted to the service and sets forth the various grades and classifications into which it is divided, with details of promotions, transfers and duties. There are ten main divisions, comprising a superior grade, also technical, traffic, traction, way and works, administrative, commercial purchasing, workshops, and auxiliary divisions. These divisions are sub-divided, some into sections with classes in each, some into classes only. The duties of each class are set out at sufficient length to cover all essential work. Some of the sub-groups under the heading of way and works, such as the electric traction section, are of considerable importance. Full schedules are published of rates of pay and pension regulations. The charter does not cover certain high administrative offices or the Board of Management, as these are dealt with under special Ministerial orders.

THE ASSOCIATED EQUIPMENT CO. LTD.—An interim dividend at 2½ per cent., free of tax, has been declared on the stock of the Associated Equipment Co. Ltd. The dividend applies to stock holders as at April 30, 1945.

Recent Signalling Developments—I

Pre-war progress in Great Britain, with some indication of how the latest technical developments might be applied to post-war traffic problems

By O. S. Nock, B.Sc., A.M.Inst.C.E., M.I.Mech.E., M.I.R.S.E.

ALTHOUGH a good deal of thought is now being given to the future ownership and higher direction of the British railways little has been discussed, publicly at any rate, about future engineering developments. This is to a certain extent natural at a time when the entire engineering resources of the country are mobilised for war purposes. The need for development, however, was apparent even before the outbreak of war. At the height of the square deal campaign, when the British railways were seeking every conceivable means of increasing their business, many existing routes already were being worked almost to capacity; indeed there were certain bottle-necks where it needed but little divergence from strict punctuality to cause congestion on the line. After the war, when one hopes to see a rational allocation, as between rail and road transport, of the nation's freight traffic, it is reasonable to expect that the railways will be called on to carry a considerably greater tonnage than in 1935-39, and, at the same time, to provide passenger services no less frequent and fast than those operating before the war.

The capacity of many lines lately has been increased, by the conversion of refuge sidings into running loops, by the quadrupling of critical sections, and so on. This has certainly helped to "keep 'em rolling"—to use a popular American railway slogan; but in post-war reconstruction, plans will have to be made to keep trains moving, passenger and freight alike, at far higher speeds, and line capacity will need to be further increased. There was a time when automatic block signalling was regarded as the panacea for all line-capacity troubles, but it is now generally realised that the most efficiently designed signalling system can be rendered of very little value unless it is combined with good traffic regulation.

In recent years technical developments have enabled increasingly large areas to be brought under the control of one signal box. These principles so far have been used mainly for the direction of traffic in the vicinity of large terminal or junction stations; in every case improved working has resulted, jointly from the greater "slickness" of power operation, and from the improved regulation made possible through having a larger area under the surveillance of one box. The further development of route switching, instead of the individual operation of all points and signals, has further speeded up the working, and made matters easier for the signalmen by eliminating much lever pulling, or switch operation.

The benefits derived from the concentration of control in a busy and complicated area, yet one that is geographically compact, are capable of equally effective realisation in more extended though equally critical areas, where, maybe, a bottleneck section may cover some 15 to 20 miles of main line. The prohibitive cost of cable up to the present has precluded the bringing of such areas under the control of one signal box, though the recent developments in coded control are now putting a distinctly altered complexion on the problem. It is, indeed, the rapid progress of the C.T.C. principle no doubt that inspired a notable passage in the paper read in November, 1942, by Mr. A. E. Tattersall before the Railway Engineering Division of the Institution of Civil Engineers. Commenting on traffic control systems, in which a controller at some predetermined location is in telephonic communication with all signal boxes and key points in his particular area, he added: "The success which has attended traffic control systems prompts the question: why should such a system stop at traffic control? Why not extend it to the signalling system? From an engineering point of view that is quite possible; the only limiting factor is the financial one. The author is convinced that the trend of signalling development is in this direction and that such development will be hastened by post-war requirements."

"It will be appreciated that signalmen are in a way traffic-controllers also, but if their sphere of control can be largely extended, then their duties approach more and more to those of the person or persons in charge of traffic-control centres, and combination of the two posts appears to be the ultimate solution."

In the present series of articles this theme is developed, and some typical examples are worked out to illustrate how the close co-ordination of the signal and train control systems can provide for a greatly improved regulation of traffic, and so increase earning capacity of the line. The first breakaway in Great Britain from the traditional use of purely mechanical means for interlocking between levers took place in 1929, when the Southern Railway, at North Kent East Junction, installed the first power frame with all-electric interlocking.

This apparatus was a locking frame of the conventional type, having the usual electro-magnets for track-circuit and indication locking, but having also a further set of electro-magnets for the lever interlocking. The circuits used ordinarily for the release of a track lock, for example, pass through a series of relays, each one proving that certain necessary conditions are fulfilled. The next step in the development of electric interlocking saw the elimination of the actual lock on the lever. Instead of releasing an electric lock, the circuits for signal and point control were arranged to energise a control relay, and it became possible to replace the robust lever and its attachments by a simple thumb switch. Although this system provided the highest degree of safety in operation, it involved one radical change in principle at which British railway operating officers generally looked askance; it was now possible for a signalman actually to operate the switch controlling the clearing of a signal, or the movement of a pair of points, when that function, in fact, was locked. It is true that the relays would prevent any response to the signalmen's action, but this one feature cut so deeply across established practice as to raise some scepticism as to the wisdom of adopting it.

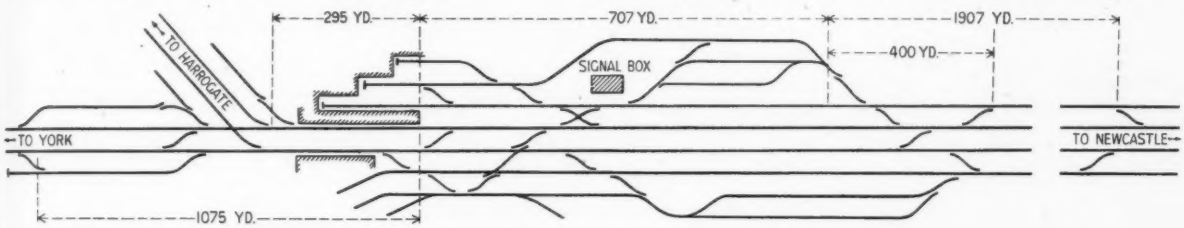


Fig. 1—Track layout at Thirsk, L.N.E.R.

The system of relay interlocking, as it became known, was pioneered by Mr. A. E. Tattersall in the North Eastern Area of the L.N.E.R. The first installation to be put into service was quite small, and controlled the signals in the approaches to the swing bridge at Goole. There soon followed the remarkable installation on the main line between York and Northallerton, the outstanding feature of which was the route relay interlocking at Thirsk. The track layout is shown in the diagram, Fig. 1.

Through the station and southward on the main line there are two running roads, with the additional facility of running loops, each about half a mile long, on both down and up sides. North of the station there are four running roads, with nests of reception sidings on both sides of the line in the immediate neighbourhood of the station. Ample provision is made for crossing trains from fast to slow roads, or *vice versa*, on the four track sections; the most northerly crossover roads controlled from Thirsk are nearly 1½ miles away from the signal box. If an all-electric interlocking of the orthodox type had been installed it would have required a power frame of 170 levers, with an overall length of about 24 ft. The relay interlocking actually used, quite apart from other features, is extremely compact. The control panel is no more than 12 ft. long and makes it possible for this extensive and com-

plex interlocking to be readily operated by one signalman.

The design of this pioneer control instrument is of particular interest, when considered in relation to the traffic passing through Thirsk. There is not a great deal of shunting, and the bulk of both passenger and goods traffic consists of through trains. The signalling arrangements on this account were designed on the route-switching principle, and by this means the work of the signalmen can be greatly lessened. Trains passing through the interlocking area follow regular routes, or recognised alternatives, and these are duly signalled. To set up such a route the signalman operates only one thumb switch, and this action sets all the points concerned and clears the appropriate signal. In one case no less than 14 pairs of points and one signal are concerned, and the whole route is set up and signalled in six seconds from the operation of the thumb switch. The number of these through routes is relatively few and it was found possible to mount the thumb switches concerned on the vertical panel whereon the track layout is displayed, each thumb switch being placed near to the signal controlling entrance to the route in question. The existence of alternative routes makes it necessary to have more than one thumb-switch associated with most of the signals, and some of the shunt signals have no fewer than six thumb-switches. To permit of the setting up of unusual movements, that are not signalled in the system of route switching provided, a set of 35 thumb switches is included on the control panel for the individual control of every pair of points in the interlocking area. In passing it is interesting to recall that route switching as a means of reducing lever movements was first used in this country on the Great Western Railway at Winchester in 1922, and later in the large interlocking at Newport. In both cases, however, the principle was incorporated in a power frame and the interlocking between levers was mechanical.

At other signal boxes on the main line between York and Northallerton a novel combination of mechanical and power operation was used. Circumstances did not justify complete power interlockings, and so mechanical lever frames were installed for operation of points adjacent to the signal boxes, and certain ground shunt signals; the main-line colour-light signals and the remote points were operated from thumb switches located on the illuminated track diagrams. No mechanical locking whatever was used. Although the thumb-switches, like those at Thirsk, were free to be operated at any time the full-sized mechanical levers were electrically locked when conditions so required, so that they could not be pulled over. The actual interlocking between the functions operated by both levers and thumb-switches was done entirely electrically. The installation as a whole, covering some 28 miles of busy main line, was boldly conceived, and its complete success definitely put relay interlocking "on the map." At the same time, the track layout on the line as a whole, and at Thirsk in particular, was very favourable to a system of route switching; in comparison, the large relay interlocking at Leeds New Station, brought into service in 1937, is deserving of close study.

This interlocking now forms part of the layout at Leeds City Station, controlling all traffic except that of the Midland Division of the L.M.S.R. Through what was formerly known as the New Station is operated the important cross-country express train service between Liverpool and Newcastle; there are fast services from Leeds to most parts of the North Eastern Area of the L.N.E.R., and there is also a considerable residential traffic terminating at the City station. Within the area controlled by the present relay interlocking there is much shunting, and light-engine movements; the track layout necessarily includes many points, crossings, and facilities for alternative route workings, and every shunt movement is fully signalled. To provide for route switching on similar lines to the system used at Thirsk would have involved a large number of thumb-switches, considerably more, in fact, than if each signal and each pair of points were operated individually. In addition facilities would have to have been provided for individual working in emergency. Quite apart from questions of operational convenience, the electrical controls would have been very extensive. It was then considered desirable to have the thumb-switches located on the track diagram close to the function controlled, so individual working of each signal and each pair of points was adopted. There are two signal boxes, of which the West contains an all-power interlocking; from the East box the points are worked mechanically from full-sized levers, and the signals from thumb-switches on the track diagram. Two men are required in each of the signal boxes. Although the control machine in the West box is very compact there are 64 thumb switches for points, and 88 thumb switches for signals, and each traffic movement requires as many "pulls" as if an ordinary power frame was used. Even so, the use of a relay-interlocking considerably lessens the work of the signalmen, and probably results in a somewhat quicker setting up of routes due to the compactness of the control machine itself.

The relay interlocking at Leeds serves to show some of the difficulties of applying the new system to a complicated layout. With any signalling control machine, whether it be a purely mechanical locking frame or a modern panel, the most complete knowledge of the track layout and of the various routes is essential if the signalman is to get the best results. On locking frames, both mechanical and power, all the "pulls" are displayed on the lever nameplates, though an experienced signalman hardly, if ever, needs to refer to them. Be that as it may, no such assistance can be provided in the limited space on a control panel, and the signalman must memorise the interlocking; exacting though this may sound, it has not proved any handicap in operation, and the enthusiasm of the men is in itself a testimony to the practical working of the system.

The installation at Leeds proved only a stepping stone to further interesting developments, in the general quest for an ideal system of controlling a power interlocking. Various schemes were designed by the different manufacturers of signalling apparatus, and in every instance where a relay interlocking was projected the rival claims of an ordinary power frame had to be carefully considered. In the North Eastern Area of the L.N.E.R., where all the largest British relay interlockings are at present to be found, a further large and busy junction was equipped with an all-electric power frame, so that a close comparison of performance could be made with very similar layouts controlled by relay interlockings.

The resignalling of the L.N.E.R. main line between York and Northallerton, including the relay interlocking at Thirsk, was carried out by the former British Power Railway Signal Co. Ltd., in which work the Siemens & General Electric Railway Signal Co. Ltd. was responsible for the relay interlocking apparatus; the new interlocking at Leeds was built and installed by the Westinghouse Brake & Signal Co. Ltd. In the same year, 1937, the General Railway Signal Co. Ltd. brought into service at Brunswick, on the Cheshire Lines, the first installation anywhere in the world of the entrance-exit type of relay interlocking; the particular system used was the G.R.S. "NX." The actual installation at Brunswick is of comparatively small extent, but the system inaugurated there includes some important operational differences and requires special notice on that account. The track layout is illustrated in the diagram, Fig. 2. The entrance-exit system provides for route switching, but differs from that used at Thirsk in that the signalman has to make two operations instead of one. The diagram, Fig. 3, exemplifies the principle involved. From the point A trains may be directed to any one of three routes: along the down main line; into the down siding, or on to the branch line. To set up a route the signalman operates the entrance knob at A, and then operates the button at the exit end of whichever route is required. These exit buttons are shown at C, D, and E. Providing the route is clear, the points con-

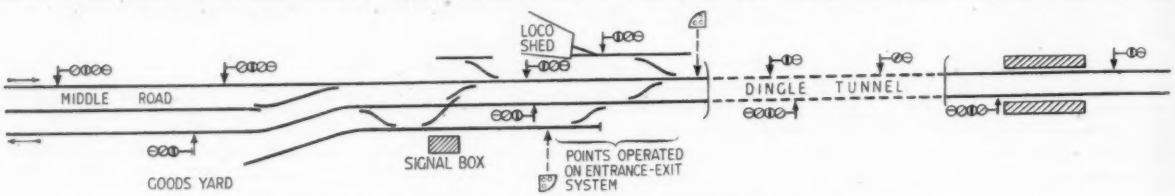


Fig. 2—Track and signal layout at Brunswick, Cheshire Lines

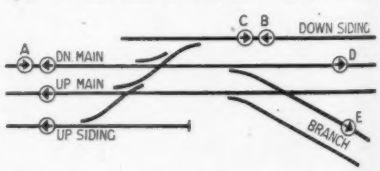
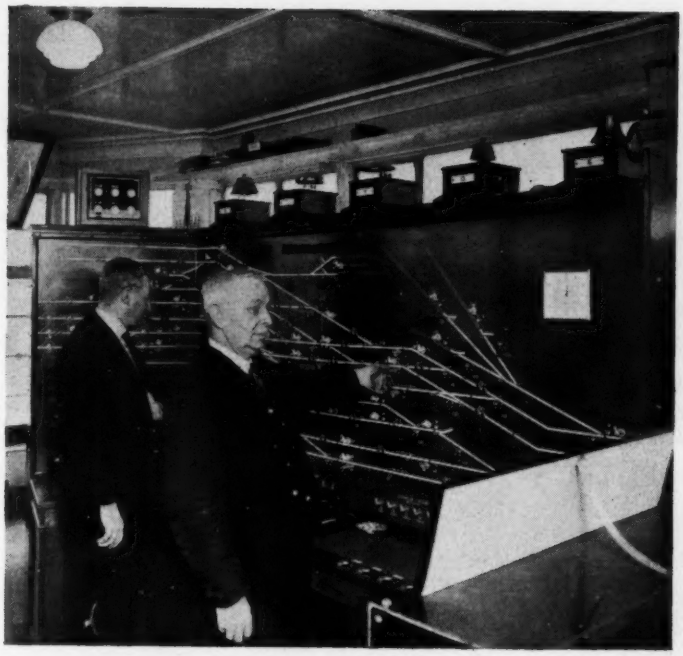


Fig. 3—Diagram illustrating principle of "entrance-exit" system of route-switching



Control panel at Leeds West L.N.E.R., with thumb-switches for individual operation of points and signals

cerned are operated and the signal at the entrance to the route duly cleared. A further example is shown in the same diagram, where from the point B a shunting movement may be made to the down main line, to the up main line, or to the up siding.

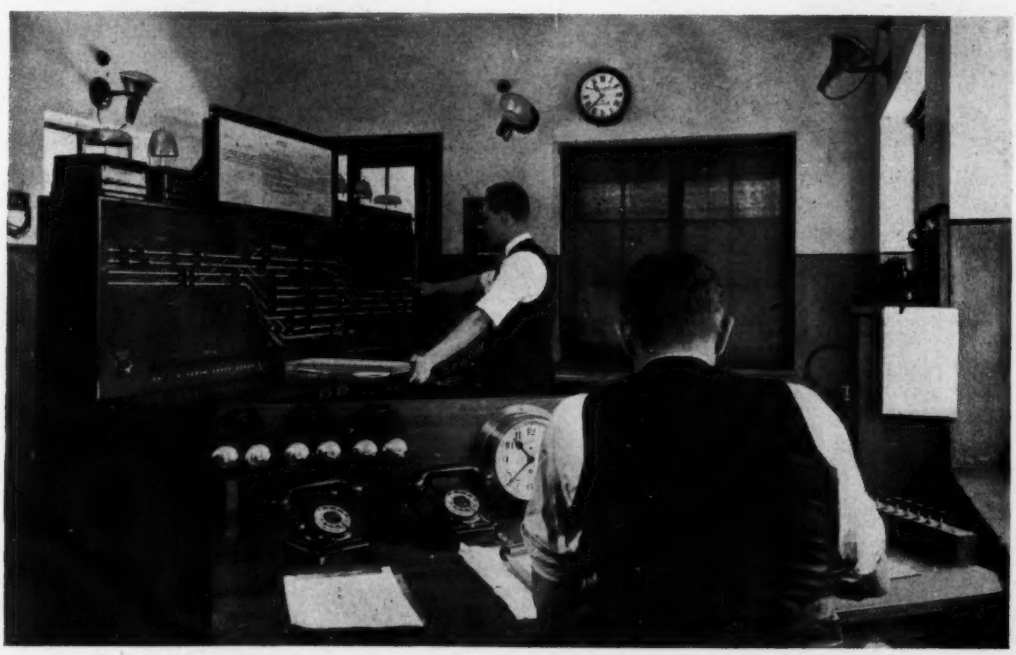
At Brunswick there were originally two signal boxes, but when the installation of colour-light signals was decided on, the signal box which previously controlled the entrance to the goods arrival line, and also the crossover roads leading to the locomotive running sheds, was eliminated. These connections are now power operated by the entrance-exit system of relay interlocking from a control panel in Brunswick signal box. In addition to this layout the main-line colour-light running signals to both west and east are operated from the control panel, by the operation of knobs located at the appropriate position on the track diagram. The points adjacent to the signal box are however still mechanically worked and the correct route must be set up before the signal can be so cleared; in the case of signals leading over mechanical points after the button is pressed no second action on the part of the signalmen is required. The point levers are electrically interlocked with the signal-control circuits.

The systems of relay interlocking so far considered have one important feature in common; the operating switches or buttons are located on the track diagram. Between 1937 and the outbreak of war development was rapid. The Westinghouse route-relay system was installed in the North Eastern area of the L.N.E.R. at Hull and Northallerton, and a further plant of altogether exceptional size is in course of installation at York. The rotary sequence-switch system, developed by Standard Telephones & Cables Limited, was selected for the resignalling at Doncaster, and the installation is almost complete.

In the next article of this series the detailed application of a relay interlocking to the signalling of a busy layout will be considered, together with some comments on the technical and operational features of the systems now available.

(To be continued)

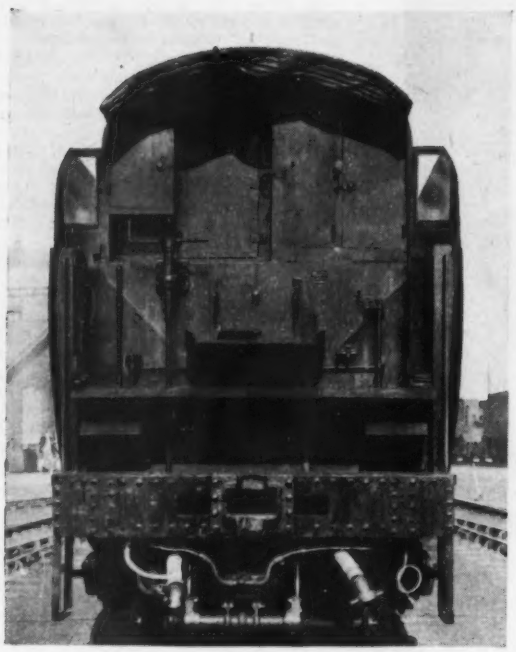
DERWENT VALLEY LIGHT RAILWAY.—Speaking at the annual meeting of the Derwent Valley Light Railway Company, held recently at York, Mr. C. W. Thompson, the Chairman, said that the company had played an important part in the latter half of the war period. In 1943 it carried 165,203 tons of traffic, compared with 52,979 tons in 1938. The speeding up of agriculture resulted in much heavier carryings for their basic traffic. Military traffic was heavy right up to D-day, and 105 special trains were run carrying important Government traffics.



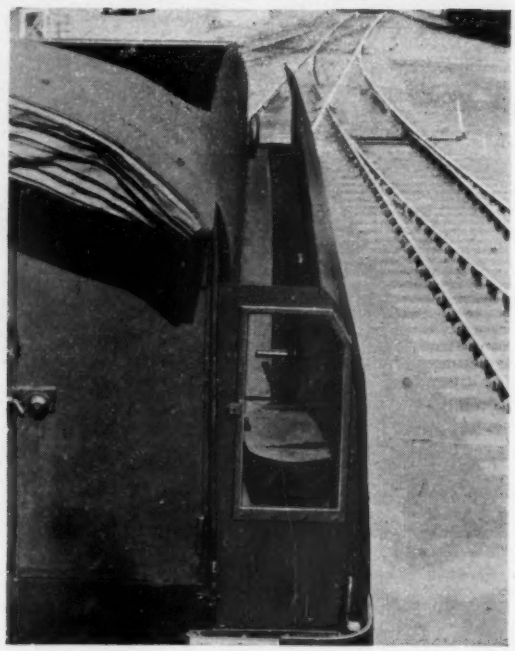
The control room at Johannesburg, showing the NX machine in the background. In the foreground is the booking desk where train arrival and departure times are recorded

"Merchant Navy" Class Locomotives, Southern Railway

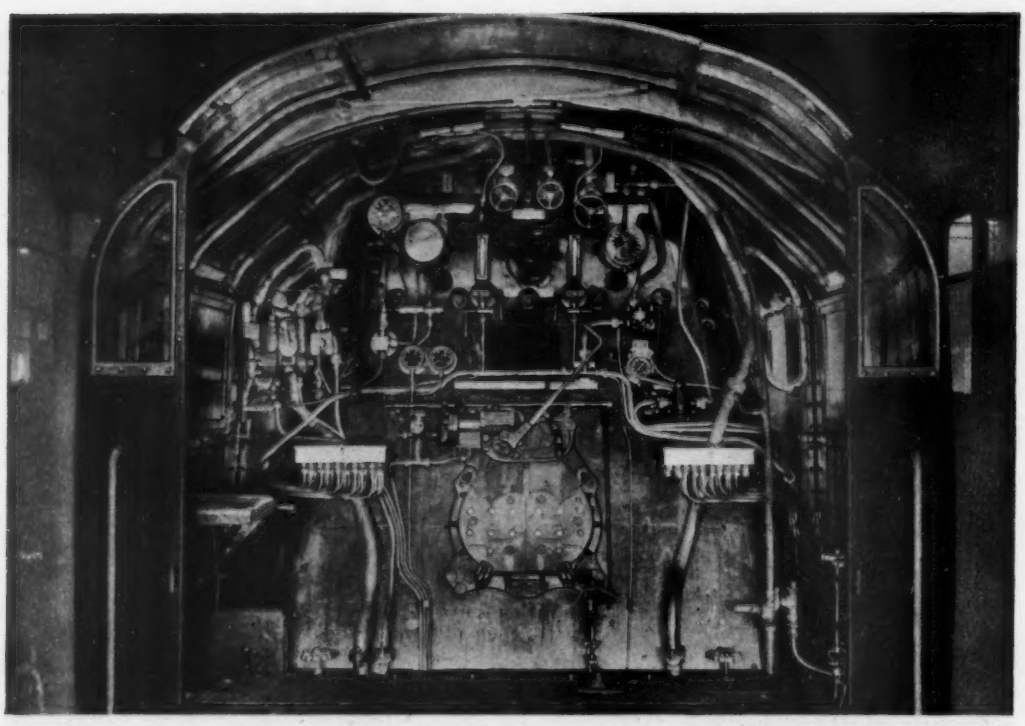
(*See editorial note, page* 486)



Tender front of latest 4-6-2 *locomotives, Southern Railway, with windows giving a clear view to the rear*



Modified tender design, Southern Railway, showing space between coal bunker and tender side-sheet for observation to the rear



Cab view of latest "Merchant Navy" class 4-6-2 *locomotive, Southern Railway, showing alcoves on each side with rear windows*

RAILWAY NEWS SECTION

PERSONAL

Mr. R. J. M. Inglis, Divisional General Manager, Scottish Area, L.N.E.R., who, as recorded in our January 12 issue, was recently released temporarily from his duties in connection with that post, has been appointed Head of the Transport Division of the British Section of the Allied Commission of Control which will be set up in Germany. He will control all transport in the British zone of occupation, including shipping.

Lt.-Colonel the Hon. J. J. Astor has been appointed a Director of the London Guarantee & Accident Co. Ltd. He is a Director of the Great Western Railway Company.

RHODESIA RAILWAYS

Sir Harold Howitt, D.S.O., M.C., has been appointed by the Secretary of State for Dominion Affairs and the Secretary of State for the Colonies as a Commissioner to advise the United Kingdom on the proposal made by the Southern Rhodesia Government for the joint acquisition by the Governments of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate of an option to purchase the share capital of the Rhodesia Railways Limited. It is contemplated that he will visit Southern Africa towards the middle of August. Sir Harold Howitt is a Chartered Accountant and a Partner in Messrs. Peat, Marwick, Mitchell & Company. He is a member of the Air Council; Deputy Chairman of the British Overseas Airways Corporation; and a member of the Colonial Economic Advisory Committee.

We regret to record the death on May 6, at the age of 74, of Mr. W. J. H. Briggs, who was Traffic Commissioner (Counties), South Eastern Area, from 1933 to 1939.

INDIAN RAILWAY STAFF CHANGES

Mr. F. C. Badhwar, M.B.E., Officiating Secretary to the Railway Board, has been confirmed in that appointment.

Mr. L. N. Flatt, C.I.E., V.D., Director, Mechanical Engineering, Railway Board, has been transferred as Officiating Chief Controller of Standardisation, Central Standards Office, Railway Board.

Mr. W. G. W. Reid, Chief Mechanical Engineer, M.S.M.R., has been appointed to officiate as Director, Mechanical Engineering, Railway Board.

Mr. R. O. C. Thomson, O.B.E., M.C., lately Chief Engineer (Construction), B.A.R., is to take over from Mr. W. M. McGregor, O.B.E., as Controller of Stores, N.W.R., from June 1, when the latter proceeds on leave preparatory to retirement.

Mr. B. C. Drummond, Officiating Deputy Controller of Stores, N.W.R., has taken over as Deputy Chief Engineer (M.), *vice* Mr. Dava Chand, granted leave.

Mr. C. R. Grey, M.B.E., has relinquished the post of Works Manager, Carriage & Wagon Workshops, N.W.R., and has taken over as Deputy Controller of Stores.

Mr. J. R. J. Pett, Mechanical Engineer, Maintenance, N.W.R., has become Works Manager, Carriage & Wagon Workshops.

We regret to record the death on May 9, at the age of 68, of Mr. Henry Langton Thornhill, who retired in 1939 from the position of Chief Legal Adviser to the London Midland & Scottish Railway Company. He was educated at Sutton Valence School, Kent, and was articled in 1894 to Mr. C. H. Mason, then Solicitor to the London & North Western Railway Company. In 1899, Mr. Thornhill was appointed Assistant in the Common Law Department, and in 1903 he became Parliamentary Assistant under Mr. C. de J. Andrewes, who in that year was appointed Solicitor to the company. In that capacity Mr. Thornhill also acquired an extensive experience of Railway & Canal Commission practice. He was absent from January, 1915, to April, 1919, on service in France, and during his absence was appointed Assistant Solicitor when Mr. M. C. Tait succeeded Mr. Andrewes as Solicitor in May, 1915. Mr. Thornhill went to the U.S.A. in May, 1920, with Mr. Geoffrey Marshall (then Goods Manager, Great Northern Railway) to study and report on the principles of railway rates. He afterwards gave evidence before the Rates Advisory Committee on behalf of the Railway Companies' Association with reference to proposed changes in railway law. On March 1, 1921, Mr. Thornhill succeeded Mr. Tait as Solicitor to the original London & North Western Railway Company; and, on the formation of the new company of that name, created by the acquisition of the Lancashire & Yorkshire Railway Company, he became, as from January 1, 1922, Solicitor to the enlarged undertaking. He was appointed Chief Solicitor to the L.M.S.R. on January 1, 1924. As from January 1, 1927, he was appointed Chief Legal Adviser to the company, which position he held until his retirement on June 30, 1939. Mr. Thornhill's father, Mr. E. B. Thornhill, was Chief Engineer of the London & North Western Railway from 1902 to 1909, and two of his brothers were officers of the railway; Mr. F. B. Thornhill was District Goods Manager, Warrington, and Mr. W. E. Thornhill was Divisional Engineer, Crewe, on retirement. A memorial service was held at St. Pancras Church, N.W.1, yesterday.

The late Mr. H. L. Thornhill
Chief Legal Adviser, L.M.S.R., 1927-39

H. L. T.

If a life can be considered well spent in that it has been passed in giving help and pleasure to one's fellow men, and in broadly obeying the "Golden Rule," few men could lay a better claim than Henry Langton Thornhill. Both afloat, for he was an enthusiastic and able yachtsman, and on shore, he was at all times an ideal host, an understanding and sympathetic companion and a loyal friend.

Had he not been so successful a lawyer, whatever profession he had adopted he would have adorned, for he had a first class brain and knew how to use it. His charm of manner was a source of pleasure to his friends, as his rapier wit was often a cause of discomfiture to his opponents, for one can really never regard him as having enemies. Times there were when friend or foe alike were treated to the castigations of his nimble and mordant tongue, but he never cherished any rancour and no man was quicker to forgive and forget.

Thornhill was in some respects an anachronism, for frequently he seemed to have been born out of his time. Modern he was in many ways, but there was yet an air of the 18th century about him, and not infrequently he seemed to recall something of one of those *grands seigneurs* of pre-Revolution France.

Whether in his office at Euston in his role of Chief Legal Adviser of the L.M.S.R., on his yacht as a bold adventurer, as a country squire at his ancient moated house in Essex, or yet again as a *flaneur* at his villa on the Riviera, he was always the same cultivated, civilised, citizen of the world, and yet in some subtle manner he seemed to take on some slightly different shade to accord with the particular *milieu* in which he found himself.

His many old friends are sadly unlikely to see his like again.—*From one of them.*

The Provisional (Western) Organisation for European Inland Transport was established by the representatives of seven Powers on May 8. The Council is composed of Government representatives. For the moment, the Executive Committee consists of five members as follow: United Kingdom, Mr. V. M. Barrington-Ward; U.S.A., General Charles Young; France, M. Jean Levy; Belgium, M. Paul de Groot; and Holland, Dr. Gishler. M. Levy is acting as Chairman. Professor E. R. Hondelink is Director-General. The offices are in London but will be transferred to a continental city.

(*See also editorial note*).

Colonel E. J. Woolley has been appointed Deputy-Chairman of the Grand Union Canal Company.

Mr. R. H. Comley (Joint Managing Director of the Avon India Rubber Co. Ltd.) has been elected President, for the ensuing year, of the Federation of British Rubber & Allied Manufacturers' Associations, in succession to Mr. Alexander Johnston (Managing Director of the North British Rubber Co. Ltd.). The new Vice-Presidents are Mr. Alan Sinclair (Acting Managing Director of the British Tyre & Rubber Co. Ltd.) and Mr. H. H. Hillier (Joint Managing Director of William Warne & Co. Ltd.).

Mr. L. W. Conibear, Acting Chief Clerk, Office of the Superintendent of the Line, Paddington, Great Western Railway, who, as recorded in our May 4 issue, has been appointed Commercial Assistant to the

Mr. L. W. Conibear

Appointed Commercial Assistant to the Superintendent of the Line, G.W.R.

Superintendent of the Line, entered the company's service in 1905, when he was attached to the Telegraph Department, Bristol. He was transferred in the next year to the Traffic Department at Stapleton Road Station. In 1907 he went to the Divisional Superintendent's Office, Bristol, and was engaged there on various duties until he joined the Army in January, 1917; he served with the Royal Engineers (Light Railway) in France and Belgium. Mr. Conibear returned to the Divisional Superintendent's Office at Bristol towards the end of 1919, and gained experience in the Passenger Train Section. In 1936 he was transferred to the Office of the Superintendent of the Line in the Excursion Department, and was promoted in charge of that section in 1938. In 1941 Mr. Conibear was appointed Assistant Divisional Superintendent at Bristol; and he returned to Paddington as Acting Chief Clerk to the Superintendent of the Line in February last.

The members of the reconstructed board of the Aero Piston Ring Co. Ltd., the share capital of which recently was acquired by the directors of Specialloid Limited, are: Messrs. H. N. Bates (Chairman), R. H. Hainsworth (Managing Director), A. C. Richards, C. F. Russell and E. B. Graham. Mr. C. G. Downing, formerly Purchasing Agent of Specialloid Limited, has been appointed General Manager of the Aero Piston Ring Co. Ltd., of which Mr. H. A. Kemp remains Works Manager, and Mr. F. R. Patterson is Production Manager.

Mr. H. A. Chapman, Senior Parliamentary Assistant, L.M.S.R., who, as recorded in our May 4 issue, has been appointed Assistant Solicitor to the company, was born in June, 1905, in Umtali, Southern Rhodesia. He was educated at St. John's, Johannesburg; Brighton College; and Clare College, Cambridge. He graduated in 1926, and shortly afterwards was articled to Mr. H. L. Thornhill, then Chief Legal Adviser, L.M.S.R. He was admitted a solicitor in October, 1929, and joined the Solicitor's staff, L.M.S.R., as Junior Parliamentary Solicitor. Mr. Chapman became Chief Assistant Solicitor (Parliamentary) in

Mr. H. A. Chapman

Appointed Assistant Solicitor, L.M.S.R.

1938. In 1934 he had been nominated by the Solicitors of the four main-line railway companies to deal with legal matters arising in connection with the submission of agreed charges to the Railway Rates Tribunal under the Road & Rail Traffic Act, 1933. In January, 1941, he was appointed Acting Secretary, Railway Companies' Association; that appointment was relinquished on March 31 last, on the return to the Association of the Secretary, Mr. Cole Deacon. In April, 1941, Mr. Chapman was appointed Secretary, Rates & Charges Committee.

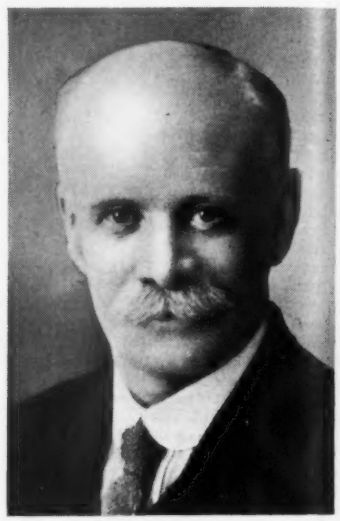
PRESENTATION TO MR. J. CRAIG

Mr. James Craig, who recently retired from the position of Stationmaster, Edinburgh (Waverley), L.N.E.R., was presented with a testimonial in the form of a bank draft by a gathering of business friends in the Merchants' Hall, Edinburgh, on May 8. Sir William Y. Darling (lately Lord Provost of Edinburgh) made the presentation, and Lord Elphinstone presided; they were accompanied on the platform by Lord Hutchison of Montrose and Mr. T. F. Cameron, Acting Divisional General Manager, Scottish Area, L.N.E.R. Others present included Mr. R. Gardiner, Superintendent, Scottish Area, L.N.E.R., and Mr. G. M. Johnston, District Superintendent, Edinburgh, L.N.E.R. A portrait and biography of Mr. Craig, who spent 52 years in railway service, appeared in our April 20 issue.

We regret to record the death on May 7 of Major Thomas G. Bird, D.S.O., Managing Director of Sir W. G. Armstrong, Whitworth & Co. (Ironfounders) Ltd., and of Armstrong Whitworth (Pneumatic Tools) Limited.

Mr. C. A. Russell has been appointed Manager of the Sheffield Office of the British Thomson-Houston Co. Ltd., in succession to the late Mr. H. W. E. Hall.

Mr. G. J. Cassie, London Manager of Heatly & Gresham Limited, who, as recorded in our May 4 issue, has retired from that post, which he has occupied since his return from India in 1926, was born in Scotland. After a training in marine



Mr. G. J. Cassie

London Manager, Heatly & Gresham Limited, 1926-45

engineering there, he went to Ceylon at the close of the last century. Soon afterwards he joined the Indian organisation of the Gainsborough firm of Marshall, Sons & Co. Ltd. in Calcutta. In 1909 Mr. Cassie joined Heatly & Gresham Limited, and in the same year opened the firm's branch office in Bombay. He afterwards became General Manager in India for the company, the business of which in that country has been closely related to many important features of development on Indian railways for over half-a-century, notably the introduction of the vacuum automatic brake and gas lighting, and, more recently, improvements in the equipment of rolling stock. Mr. Cassie's services are being retained by the board in an advisory capacity.

Mr. J. L. Riordan, who, as recorded in our May 4 issue, has been appointed to succeed Mr. G. J. Cassie as London Manager of Heatly & Gresham Limited, is the son of the late Mr. J. Riordan, who was for 26 years in the Mechanical Department of the Bengal-Nagpur Railway and retired in 1912 from the post of Works Manager at Khargpur. Mr. J. L. Riordan received his early training in the Atlas Works of the North British Locomotive Co. Ltd. He joined Heatly & Gresham Limited in 1921 for service in India. After a period in Calcutta, he was, successively, Manager of the Madras and Bombay Branches. He was posted to the London Office in 1939.

Canadian Pacific Railway Company

The annual general meeting of the Canadian Pacific Railway Company was held in Montreal on May 2. Mr. D. C. Coleman, LL.D., D.C.L., Chairman & President, presided.

The Chairman, in the course of his address, said that gross earnings in 1944 for the first time surpassed the three hundred million dollar mark, and were 7·3 per cent. higher than those for the previous record-breaking year of 1943. The increase in volume of traffic handled was actually somewhat greater than the earnings, as both freight ton-miles and passenger-miles increased by 10 per cent. While operating efficiency also improved, net earnings declined $6 million despite the greatest gross earnings on record. The net earnings of 1944 had actually been exceeded ten times in the past 33 years.

The directors were gratified that the financial condition of the company warranted the declaration of dividends totalling 5 per cent. for the year on the ordinary capital stock. This modest distribution came after a long series of disappointing years due to world depression, drought in Canada's wheat lands, and the necessity for strict conservation of the company's wartime earnings in order to provide for the exigencies of the post-war period. Newspaper editors and analysts both in Canada and abroad had emphasised that a feature of these dividends, apart from the personal cash benefit to shareholders, was the beneficial impact of the payments upon Canada's foreign trade.

Speaking of the widespread nature of the ownership of the company's capital stock, the Chairman said that of both ordinary and preference stocks there were at the present time throughout the world approximately 84,000 individual holdings, and 61,000 of these holdings, or almost 75 per cent., were of not more than 100 shares each. In Canada alone there were more than 25,000 registered holders of the ordinary stock. Moreover, many single entry stockholdings registered in the names of banks, insurance companies, educational, medical and benevolent institutions, were maintained for the ultimate benefit of many thousands of individuals.

Hitherto the least publicised and perhaps the most noteworthy chapter in the Canadian Pacific's war story was the record of the part played by the company's steamships and the gallant seamen who served in them. The company's vessels had been engaged in practically all major operations since the commencement of hostilities, including those of Singapore, North Africa, the Eastern Mediterranean, the expedition to Spitzbergen, the capture of the Island of Madagascar and the landings on the coast of Normandy. The Battle of the Atlantic and actions elsewhere had taken heavy toll of the company's ships and personnel. Altogether twelve steamships, representing 193,061 gross tons, had been lost, and in addition two vessels, the *Montcalm* and the *Montclare*, were taken over permanently by the Admiralty. Many sea-going employees, including three masters and several other senior officers had been lost; some of them serving on ships allocated by the Ministry of War Transport for operation by this company. The known killed numbered 272 and 155 were missing or prisoners of war.

The report and accounts were adopted.

Questions in Parliament

L.P.T.B. Sickness Returns

Mr. W. J. Brown (Rugby—Ind.) on May 2 asked the Parliamentary Secretary to the Ministry of War Transport if he could give an analysis, on the same lines as that given in a recent return by the General Manager of the Glasgow Corporation transport system, of which a copy had been sent to him, of the incidence of the type of sickness and the number of days lost, and so on, in the L.P.T.B. district for 1944.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Minister of War Transport) stated in a written answer: I regret that the London Passenger Transport Board does not keep statistics similar to those published by the General Manager of the Glasgow Corporation transport undertaking. It has, however, furnished me with certain other information about the incidence of sickness among its staff. Details are appended.

	Drivers	Male conductors	Women conductors
1. *Central buses*—			
(*a*) Average number employed during the year	9,564	5,471	5,002
(*b*) Total man days lost through sickness ...	193,104	125,106	204,924
(*c*) Sickness percentage ...	6·4	7·3	13·1
2. *Country buses*—			
(*a*) Average number employed during the year	1,857	197	1,649
(*b*) Total man days lost through sickness ...	18,852	3,852	42,060
(*c*) Sickness percentage ...	3·3	6·2	8·2
3. *Trams and trolleybuses*—			
(*a*) Average number employed during the year	5,148	2,842	2,692
(*b*) Total man days lost through sickness ...	95,586	93,122	143,430
(*c*) Sickness percentage ...	5·9	10·5	17·0
4. *Railways*—		All operating grades	
(*a*) Average number employed during the year		7,250	
(*b*) Total man days lost through sickness (excluding Sundays)		152,282	
(*c*) Sickness percentage		6·7	

Transport of German Prisoners of War

Sir Wavell Wakefield (Swindon—C.) on May 1 asked the Secretary of State for War if in future when German prisoners of war were being moved from one place to another he would arrange for them to march or be conveyed in guards' or other closed vans and not in passenger coaches depriving British travellers of seats and necessitating their standing in the corridors.

Sir James Grigg (Secretary of State for War): No, sir. If the prisoners are moved by rail, less British troops for guarding and administering the prisoners are needed than if they are marched. It is more difficult, also, to guard prisoners in vans, and for this, and technical railway reasons, passenger coaches are used.

Sir W. Wakefield: Does the Minister think it is satisfactory that women and children should stand in crowded corridors while German prisoners loll luxuriously in seats?

Sir J. Grigg: It is extremely easy to make that case, because it has an appeal to popular feeling. I am not an expert railwayman, but I am assured that if prisoners are put into closed vans, as Sir Wavell Wakefield suggests, fewer coaches would be included in the train. This would mean, therefore, that fewer passengers could be carried.

Staff and Labour Matters

Engineering Wages

We recorded briefly in our May 4 issue the increase awarded by the National Arbitration Tribunal in the wages of engineering workers arising out of the claim of the unions for a substantial increase in the minimum basic rates for adult male time-workers and piece-workers.

The award of the Tribunal (No. 718) states that representatives of the parties were heard at a sitting held in London on April 23, 1945. Statements were made and documents submitted as to: the present district inclusive minimum rates (that is, basic rates plus national bonus) for adult male time-workers and adult male workers on systems of payment by results, as provided under the terms of Awards Nos. 326 and 555; the increases in these rates since the war, compared with the increase in the cost-of-living index figure and in the Treasury index of retail prices; the extent to which actual rates are in excess of the minimum rates; the course of average weekly earnings and hours between October, 1938, and July, 1944, in the different sections of the engineering industry, compared with that in other industries; the extent to which average earnings have been affected by overtime, Sunday and holiday working; the expected fall in average earnings as overtime falls off and hours revert to 47 a week; the extent to which average weekly hours worked are or are not in fact falling; the extent to which in the view of the unions the existing district inclusive minimum rates fail to meet expenses necessary to maintain an adequate standard of health and living; the post-war prospects for the industry on its technical, commercial and financial sides, and in particular in relation to export trade; the relationship of wage rates to cost of production; the importance of maintaining a relationship between money wages, prices, and supplies; and the financial position of the industry.

The full award of the Tribunal which has effect as from the beginning of the first full pay period following April 24 is as follows:—

(*a*) The existing basic rates for adult male workers, both time-workers and piece-workers, shall be increased by 4s. 6d. a week of 47 hours.

(*b*) No alteration is made by this award in the existing national bonus for adult male time-workers and for adult male piece-workers, respectively, as provided under the terms of Awards Nos. 326 and 555.

(*c*) The only alteration made by this award as respects piece-work prices and "bonus or basis times" in the case of workers employed on piece-work is that piece-work prices and bonus or basis times shall be such as will enable a workman of average ability to earn at least 27½ per cent. over the appropriate new basic time-rate provided by this award, instead of at least 27½ per cent. over the appropriate basic time-rate provided by Award No. 326.

(*d*) In the application of this award to time-workers individual merit rates, lieu rates, compensatory or other bonuses, and merit rates commonly applied, shall be maintained.

(*e*) The rates provided by Awards Nos. 326 and 555 as amended by this award are minimum rates and this award shall not operate to reduce the existing rates of workers who are remunerated at rates higher than those provided by the said awards.

Under prevailing agreements in the engineering industry apprentices, boys and youths in the industry will receive proportionate increases in basic rates as follow:—

Age 14	...	...	17½ per cent. of 4s. 6d.	
,, 15	...	...	22½	,, ,,
,, 16	...	...	27½	,, ,,
,, 17	...	...	32½	,, ,,
,, 18	...	...	45	,, ,,
,, 19	...	...	52½	,, ,,
,, 20	...	...	62½	,, ,,

XUM

TRANSPORT SERVICES AND THE WAR—294

Locomotives Loaned to Industry

More than 400 locomotives have been loaned from time to time by the British main-line railways to Government Departments and industry for internal use at factories, depots, and ordnance works.

L.M.S.R. War Specials

The L.M.S.R. announced on May 7 that, during the previous week, it had run 1,196 special trains of troops and war materials, 38 ambulance and 10 prisoners of war trains, bringing the company's total of specials during the war to 177,430, an overall average of 600 a week.

Repair Squad Special Trains

The Southern Railway is continuing the operation of its repair squad special trains, and will probably do so throughout the remainder of the year. There are seven of them altogether in which 450 workers are carried daily from Chichester, Bognor, and Littlehampton to East Croydon; 960 from the Brighton area to Norwood and New Cross; 650 from Worthing, Lancing, and Shoreham to East Croydon; and 200 from Dorking to Vauxhall.

B.L.A. Leave Trains

As from May 1, because of an increase in the volume of B.L.A. leave, the L.N.E.R. has amended the time schedule of the special leave train which runs daily from Dover to Edinburgh. Besides providing a new stop at Peterborough the total journey time is reduced by nearly half an hour, and the distance of more than 470 miles to Edinburgh is covered in 12 hr. 35 min., including stops. This train passes through the London area and joins the L.N.E.R. at Canonbury; thence its route is *via* Peterborough, Doncaster, York, Stockton, West Hartlepool, Sunderland, and Newcastle.

From May 1, also, the Southern Railway and the L.M.S.R. are providing an additional leave train daily to Leeds, calling at Derby, Chesterfield, and Sheffield.

The Petrol Ration

Mr. Churchill announced in the House of Commons on May 10 that there would be an easement in the petrol ration system. Bus services and retail deliveries would be improved to the full extent that the available labour would allow, and an increased allowance would be given for cars and motor cycles used for professional or business purposes, and for taxicabs and private-hire cars.

A modest basic ration, substantially the same as in the United States, and freely at the disposal of all private owners of cars and motor cycles, would be introduced within a month. It was stated subsequently that the basic ration books are obtainable as from May 16, and that for cars up to 9 h.p. the ration will be four gal. a month; for cars of 10 to 13 h.p., five gal.; 14 to 19 h.p., six gal.; and 20 h.p. and over, seven gal.

Locomotives for Coastal Defence

In the earlier days of the war, when Great Britain had little more than the sea between her and the enemy, railway locomotives played an important part in the defence of the country. For hauling armoured trains on patrol work in the Eastern and Southern Counties of England and Scotland 16 steam locomotives were supplied. Another 9, diesel-electric locomotives, were provided for use with super-heavy rail-mounted batteries needed for the coastal defence of Southern England. These diesel-electric locomotives were particularly suitable for this work as they gave off no smoke which would betray their position or movement to the enemy.

Vulnerability of Locomotives

To provide data concerning the effect of aerial attack on railway locomotives in circumstances which could be measured with precision, three fighter planes of the Eighth U.S. Air Force attacked the G.W.R. locomotive No. 2656 in a test on June 8 of last year. The locomotive was stationary; was white-washed; and was in steam. Two fighter planes used 50-calibre ammunition, and another a 20-mm. cannon. The locomotive was badly damaged, but not destroyed by the 33 machine gun hits and two cannon hits. A railway-shop battalion of the U.S.A. Transportation Corps repaired the engine, and had it in serviceable condition to pull a normal-sized freight train in four days.

Tube Shelters Closed

The 79 passenger stations on the tube systems of the London Passenger Transport Board, which have been used as air raid shelters since the first London raids of 1940, were closed as shelters after the night of May 6. The London Passenger Transport Board has been authorised by the Regional Commissioner to take this action. A beginning has been made already with the removal of equipment.

The shelters in disused tunnels and stations, such as Aldwych and the British Museum, are not affected at present.

Some fifty million persons have been given shelter during the past 4½ years. Forty million persons slept at the stations, and another 10,000,000 sheltered during the short alerts, day and night. The numbers sleeping at the tube stations during each year of the war were:—

1940 (September to December)...	12,350,481
1941	14,402,507
1942	1,179,322
1943	2,378,064
1944	8,456,908
1945	1,266,291

There were 7,600 three-tier bunks, with accommodation for 22,800 persons, installed. Five thousand tons of refreshments, prepared at six food depots, were conveyed in special trains ("bun specials"), which worked in with the normal Underground train services. A staff of 2,000 paid and voluntary workers has been engaged in supervising and attending to the needs of shelterers. At times there were as many as 25,000 children sheltering at the stations on one night.

Return of Evacuees

Return facilities were extended on May 7 to all areas from which evacuees were moved under the Government scheme. The final step was the announcement on that date by the Ministry of Health that facilities to return home had been extended to evacuees from areas on or near the East Coast. These areas are:—

Essex.—Southend-on-Sea, Colchester, Harwich, urban districts of Benfleet (part), Brightlingsea, Clacton, and Frinton and Walton; rural district of Tendring (part).
Lincolnshire.—Grimsby and Cleethorpes.
Norfolk.—Great Yarmouth.
Suffolk.—Ipswich, Aldeburgh, Lowestoft, Southwold, urban districts of Felixstowe, and Leiston-cum-Sizewell; rural district of Deben (part).
Yorkshire.—Hull.

Free travel vouchers will be issued to all adult evacuees and mothers with children who have homes to go back to, but special trains, or reserved coaches, will be arranged for unaccompanied children. The Government has again warned evacuees with no homes to which to return to stay where they are for the present.

Except Hull, Grimsby, and Cleethorpes, all the areas are towns and districts from which the non-essential population was asked to leave at the time of the threat of invasion. Families who left for this reason will be eligible for official help to return whether or not they are billeted under the Government evacuation scheme. The present addresses of those not officially billeted are not recorded, and no help to return can be given them unless they themselves apply to the local authoriy of the area in which they are now living for details of the return-home scheme.

Overseas Travel

The following announcement was made on May 7 by the Home Office, the Air Ministry, and the Ministry of War Transport:—

Owing to heavy demands on shipping and aircraft for military and other purposes, and the loss of many ocean-going liners on war service, passenger accommodation to overseas countries is still very severely limited.

The existing priority arrangements for ocean and air travel must therefore be continued, and reservations can normally be made only when the appropriate Government Department is able to certify that the proposed journey is in furtherance of the war effort in the Far East or otherwise in the national interest.

Moreover, until control is thoroughly established in Germany, it will still be necessary to maintain security precautions as regards overseas travel and travel to Ireland, and there will be, for the present, no change in exit permit regulations. These restrictions will be relaxed at the earliest possible moment and a further announcement will be made when this becomes practicable.

British subjects belonging to the Dominions, as well as to the United Kingdom, who have been separated from their own countries and families for long periods, are naturally anxious to book their passages home as early as possible. Every effort will be made to provide passages for such persons as soon as military and other priorities permit, but no resumption of normal overseas traffic can be expected until some considerable time after the end of hostilities with Japan.

Craigendoran as Emergency Port

In 1940 when the enemy was striving desperately to cut our sea communications, and endeavouring by bombing and the use of magnetic mines to make East Coast ports unusable, the Ministry of War Transport decided to use piers on the West Coast of Scotland for unloading cargoes. One of these was Craigendoran, the Firth of Clyde pier where in peacetime holidaymakers join the L.N.E.R. steamers for the Clyde holiday resorts.

The adaptation of the pier to cope with wartime cargoes as well as passenger steamer traffic was not without difficulties. A pier built for berthing shallow-draught paddle steamers obviously could not accommodate ocean-going vessels. There were no suitable cranes, experienced dockers, railway lines on the pier, or facilities for moving heavy loads from the pier to rail vehicles at the nearest loading point in the adjoining passenger station.

An organisation known as the Clyde Anchorages Emergency Port was set up by the Ministry of War Transport to establish and work the arrangements. A large fleet of shallow-draught vessels was assembled to ferry the cargo from ocean steamships to the pier. These small vessels included barges from England, and Dutch self-propelled barges manned by Dutch crews. Electric trolleys were installed to transfer

the cargoes from the pier to the adjoining passenger station for loading into rail vehicles at the platform. The structure and the road surface at the pierhead were strengthened, four electric cranes, each of 12-cwt. capacity were erected, and the necessary power was laid on. A workshop with special plant was provided for the maintenance of the trolleys and recharging of batteries. Of the trolleys, 24 were sent from the blitzed Victoria Docks in London, and with them went 70 London dockers. Many of these men had never been in Scotland before, and, in the early stages, they found it difficult to understand the Scots dialect.

While the pier was in course of conversion, the L.N.E.R. made arrangements for dealing with the greatly increased traffic passing by rail, requiring additional staff, extra locomotive power, and supplies of empty wagons. The first cargo, 340 tons of canned milk, was despatched from Craigendoran in 33 wagons on October 11, 1940. From that date, the barges plied steadily between ship and shore. Sometimes, in winter, the sea was too rough for these craft built for inland waterways, but, despite adverse weather and blackout conditions, the barges in their four years of service at Craigendoran made some 4,280 journeys to and from the pier and landed upwards of 170,000 tons of traffic, which was transferred to rail vehicles and dispatched to destinations all over Great Britain.

During the period in which Craigendoran operated as an emergency port, the L.N.E.R. provided more than 21,500 empty vehicles for forward loading. In many cases, special types of vehicles were required, and, although wartime demands on freight rolling stock were extremely heavy, an expeditious despatch was always given to these valuable imports. One class of traffic which deserves special mention consisted of mails from overseas, from prisoners of war, and from homes across the Atlantic to the Forces serving in Great Britain and Europe. For security reasons, information concerning landings was usually received at short notice—sometimes as brief as three or four hours—but arrangements were made to ensure that box-wagons were placed in position, loaded, and transported rapidly by express train. Under the supervision of Post Office officials, 154,556 bags of mail were loaded in 598 vans and dispatched by 35 special express trains in the first 11 months of 1944. It was then found possible for these wartime activities to be suspended, and all concerned can congratulate themselves on a job well done.

The Leave Train

The once-famous leave train between Newcastle and Ashford (Kent) began to run on weekdays only on Monday, September 23, 1940, for the purpose of inducing members of the Forces proceeding on and returning from leave to make their journeys without travelling *via* London, having regard to the difficult conditions which were then prevailing in the metropolis on account of enemy action. From December 10, 1940, these trains were made available for civilian passengers subject to the whole of the accommodation not being required by Service personnel. On Saturdays the public were allowed to travel on them without restriction. In March, 1941, authority was obtained for advertising these trains and they were included in the public timetables of the three companies concerned issued on May 5, 1941, when a note to the effect that "Limited Accommodation Only" was available. In October 6, 1941, issue of the L.N.E.R. timetable the words "Limited Accommodation" were deleted and the service thus became an ordinary advertised one. The trains continued to run until Saturday, May 13, 1944, after which date they were discontinued. The timings which were in operation immediately before the cessation of the service in May last were as follow :—

Northbound

		a.m.
Ashford (Kent)	dep.	8.45
Paddock Wood	,,	9.12
Tonbridge	arr.	9.22
	dep.	9.24
Redhill	arr.	9.54
	dep.	10.00
Deepdene	,,	10.15
Guildford	arr.	10.42
	dep.	10.44
North Camp	,,	11. 3
Reading (G.W.R.)	arr.	11.37
	dep.	11.40
		p.m.
Didcot	arr.	12. 6
	dep.	12. 8
Oxford	arr.	12.30
	dep.	12.35
Heyford	,,	12.58
Banbury	arr.	1.13
	dep.	1.27
Woodford & Hinton	arr.	1.46
	dep.	1.48
Rugby Central	arr.	2.10
	dep.	2.13
Leicester Central	arr.	2.42
	dep.	2.52
Loughborough Central	arr.	3. 6
	dep.	3. 9
Arkwright Street	dep.	3.30
Nottingham Victoria	arr.	3.33
	dep.	3.36
Sheffield Victoria	arr.	4.43
	dep.	4.55
Rotherham (Masboro')	,,	5.12
Pontefract (Baghill)	,,	5.55
York	arr.	6.37
	dep.	6.45
Thirsk	arr.	7.14
	dep.	7.16
Northallerton	arr.	7.28
	dep.	7.36
Darlington	arr.	7.56
	dep.	8. 0
Durham	arr.	8.31
	dep.	8.34
Newcastle	arr.	8.55

Southbound

		a.m.
Newcastle	dep.	8.15
Durham	arr.	8.38
	dep.	8.42
Darlington	arr.	9.14
	dep.	9.17
Northallerton	arr.	9.37
	dep.	9.39
Thirsk	arr.	9.51
	dep.	9.52
York	arr.	10.20
	dep.	10.30
Sherburn-in-Elmet	,,	10.50
Pontefract (Baghill)	,,	11. 8
Rotherham (Masboro')	arr.	11.47
	dep.	11.52
		p.m.
Sheffield (Victoria)	arr.	12. 7
	dep.	12.32
Nottingham (Victoria)	arr.	1.33
	dep.	1.39
Arkwright Street	arr.	1.41
	dep.	1.45
Loughborough (Central)	arr.	2. 3
	dep.	2. 6
Leicester (Central)	arr.	2.22
	dep.	2.32
Rugby (Central)	arr.	2.59
	dep.	3. 3
Woodford & Hinton	arr..	3.23
	dep.	3.25
Banbury	arr.	3.32
	dep.	3.55
Oxford	arr.	4.33
	dep.	4.37
Reading (G.W.R.)	arr.	5.18
	dep.	5.20
North Camp	,,	6. 4
Guildford	arr.	6.20
	dep.	6.22
Deepdene	,,	6.53
Redhill	arr.	7.10
	dep.	7.18
Tonbridge	arr.	7.52
	dep.	7.54
Paddock Wood	,,	8. 5
Ashford (Kent)	arr.	8.32

The locomotive working to cover these trains was: S.R. engines, Ashford (Kent) to Redhill and Redhill to Banbury; L.N.E.R. engines, Banbury to Sheffield (Victoria), Sheffield (Victoria) to York, and York to Newcastle. The coaching stock consisted of one set of L.N.E.R. stock and one set of Southern vehicles, and for a time L.N.E.R. buffet cars were provided.

After "D" Day and the establishment of a substantial Force in northern France, the leave trains were eventually replaced in part by a service of through Newcastle-Southampton trains, introduced on Monday, September 4, 1944, as an unadvertised service, and running on weekdays only. The present timings are :—

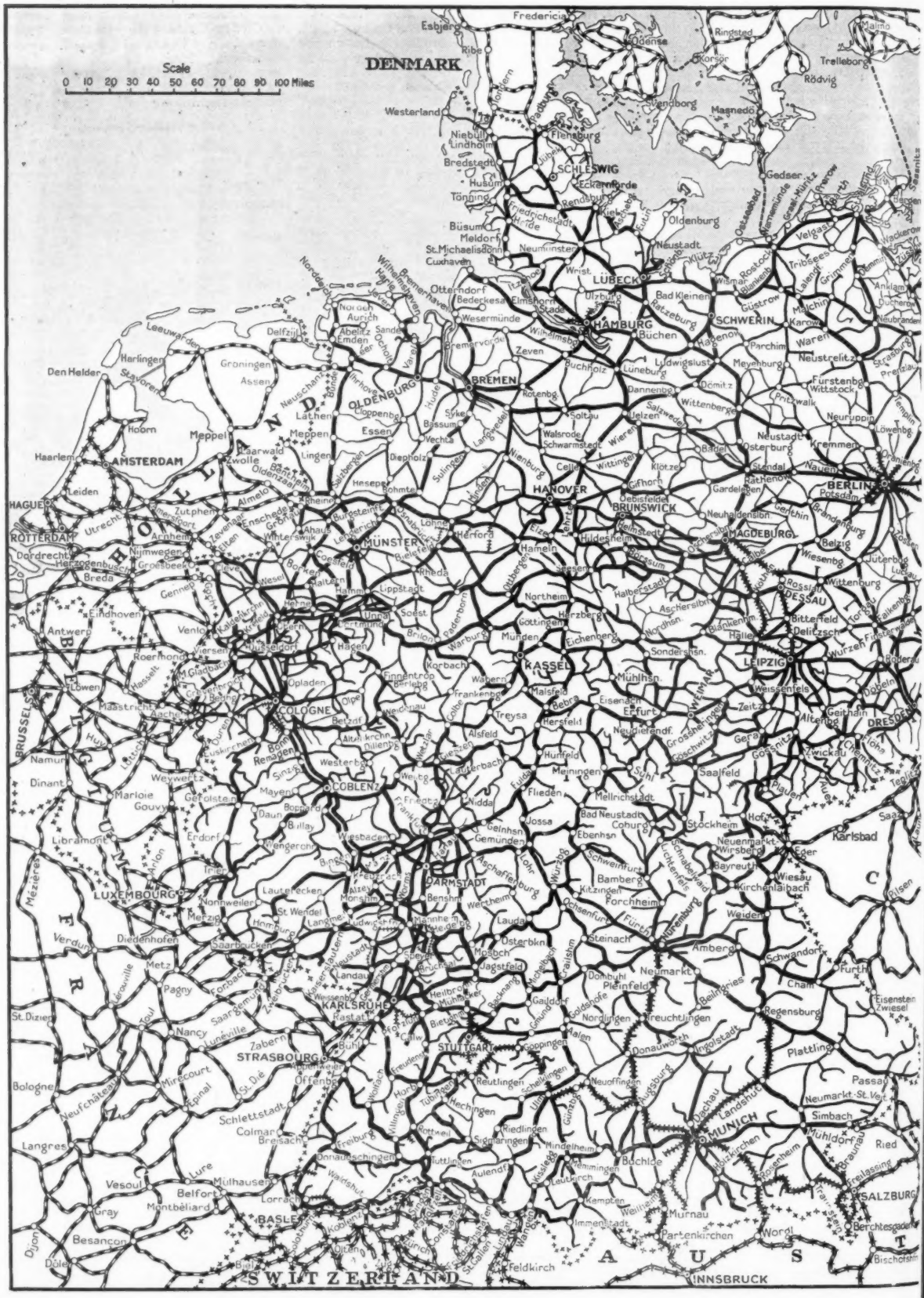
Northbound

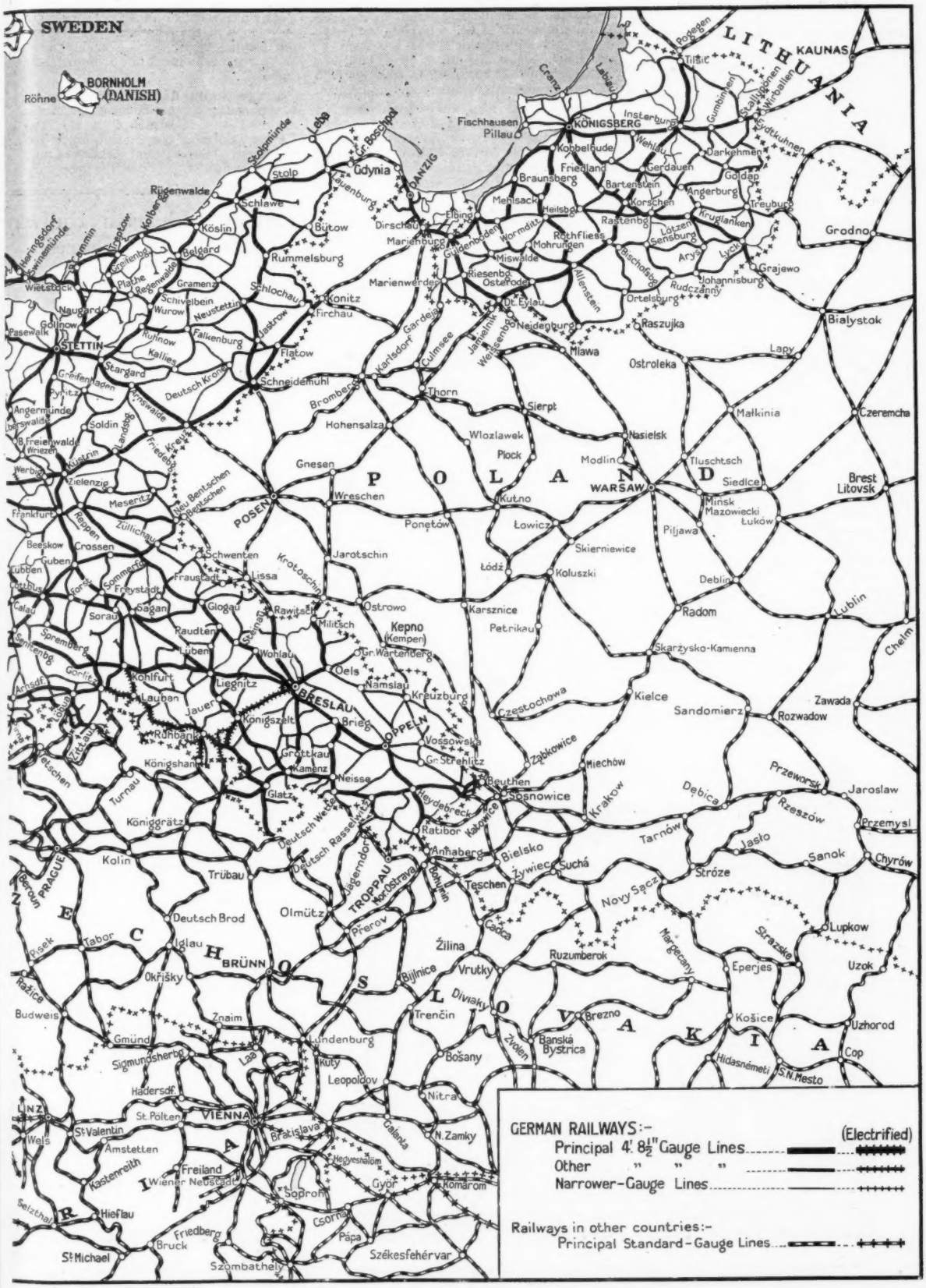
		a.m.
Southampton (Central)	dep.	10.10
Eastleigh	arr.	10.22
	dep.	10.25
Winchester	arr.	10.38
	dep.	10.41
Basingstoke	arr.	11. 7
	dep.	11.15
		p.m.
Didcot	arr.	12. 7
	dep.	12.15
Oxford	arr.	12.30
	dep.	12.38
Heyford	arr.	12.58
	dep.	1. 0
Banbury	arr.	1.17
	dep.	1.27
Woodford & Hinton	arr.	1.45
	dep.	1.53
Rugby (Central)	arr.	2.13
	dep.	2.16
Leicester (Central)	arr.	2.42
	dep.	2.52
Loughborough (Central)	arr	3. 6
	dep.	3. 9
Arkwright Street	arr.	3.28
	dep.	3.30
Nottingham (Victoria)	arr.	3.33
	dep.	3.36
Sheffield (Victoria)	arr .	4.43
	dep.	4.55
Rotherham & Masboro'	arr.	5. 9
	dep.	5.12
Pontefract (Baghill)	arr.	5.53
	dep.	5.55
York	arr.	6.33
	dep.	6.45
Thirsk	arr.	7.14
	dep.	7.16
Northallerton	arr.	7.28
	dep.	7.36
Darlington	arr.	7.56
	dep.	8. 0
Durham	arr.	8.31
	dep.	8.34
Newcastle	arr.	8.55

Southbound

		a.m.
Newcastle	dep.	8.15
Durham	arr.	8.38
	dep.	8.42
Darlington	arr.	9.14
	dep.	9.17
Northallerton	arr.	9.37
	dep.	9.39
Thirsk	arr.	9.51
	dep.	9.52
York	arr.	10.20
	dep.	10.30
Sherburn-in-Elmet	dep.	10.50
Pontefract (Baghill)	arr.	11. 6
	dep.	11. 8
Rotherham & Masboro'	arr.	11.47
	dep.	11.52
		p.m.
Sheffield (Victoria)	arr.	12. 7
	dep.	12.32
Nottingham (Victoria)	arr.	1.33
	dep.	1.39
Arkwright Street	arr.	1.41
	dep.	1.45
Loughborough (Central)	arr.	2. 3
	dep.	2. 6
Leicester (Central)	arr.	2.20
	dep.	2.30
Rugby (Central)	arr.	2.58
	dep.	3. 2
Woodford & Hinton	arr.	3.22
	dep.	3.30
Banbury	arr.	3.47
	dep.	3.55
Oxford	arr.	4.33
	dep.	4.37
Basingstoke	arr.	5.45
	dep.	5.55
Winchester	arr.	6.21
	dep.	6.25
Eastleigh	arr.	6.36
	dep.	6.40
Southampton (Central)	arr.	6.50

Although these trains are not at present included in the public timetables, they are available for use by ordinary passengers and reference is made to them at stations by means of blackboard notices, etc. The locomotive workings are as follow: S.R. engines, Southampton (Central) to Woodford & Hinton; L.N.E.R. engines, Woodford & Hinton to Sheffield (Victoria), Sheffield (Victoria) to York, and York to Newcastle.


Scale
0 10 20 30 40 50 60 70 80 90 100 Miles
DENMARK
Esbjerg
Fredericia
Ribe
Odense
Ringsted
Malmo
Korsor
Trelleborg
Rödvig
Westerland
Wendborg
Magnedö
Niebüll
Lindholm
Flensburg
Bredstedt
SCHLESWIG
Husum
Eckernförde
Gedser
Tönning
Rendsburg
Kiel
Oldenburg
Büsum
Meldorf
Neumünster
Neustadt
St. Michaelisdonn
Cuxhaven
LÜBECK
Otterndorf
Bederkesa
Elmshorn
Stade
Bad Kleinen
Wismar
Rostock
Velgast
Grimmen
Ankla
Neubrande
Wesermünde
HAMBURG
Buchen
SCHWERIN
Malchin
Waren
Parchim
Neustrelitz
Strasbg
Prenzlau
Harlingen
Groningen
Assen
Delfzijl
Emden
Aurich
Norden
Leeuwarden
Den Helder
Stavoren
BREMEN
Buchholz
Lüneburg
Ludwigslust
Meyenburg
Fürstenbg
Wittstock
Dömitz
Pritzwalk
Dannenbg
Wittenberge
Salzwedel
Neuruppin
Löwenbg
Oldenburg
Lathen
Loppenbg
Bassum
Syke
Soltau
Uelzen
Walsrode
Schwarmstedt
Meppel
Meppen
Essen
Vechta
Diepholz
Lingen
Haarlem
AMSTERDAM
Zwolle
Celle
Wittingen
Klötze
Badel
Osterburg
Stendal
Neuen
Hoorn
Leiden
HANOVER
Gifhorn
Gardelegen
Kathenow
BERLIN
Potsdam
HAGUE
Zutphen
Almelo
Rheine
Oebisfelde
BRUNSWICK
Neuhaldensln
Gerlebn
Brandenburg
ROTTERDAM
Utrecht
Arnheim
Ahaus
Lohne
Helmstedt
MAGDEBURG
Dordrecht
Nijmwegen
MÜNSTER
Herford
Hameln
Hildesheim
Wiesenbg
Belzig
Herzogenbusch
Groesbeek
Enschede
Gronau
Lingen
Osnabrück
Rossla
Breda
Wittenberg
DESSAU
Gennep
Rheine
Halberstadt
Aschersleb
Eindhoven
Northeim
Antwerp
Venlo
Soest
Herzberg
Bitterfeld
Delitzsch
Roermond
Viersen
Unna
Gottingen
Munden
Eichenberg
Halle
Gladbach
Hagen
Korbach
Sondersn.
LEIPZIG
Opladen
KASSEL
Mühlhsn.
Wurzen
Löwen
Masstricht
Aachen
Malsfeld
Weissenfels
Frankenbg
Eisenach
Zeitz
Bedra
Treysa
Effurt
Geithain
Altenbg
COLOGNE
Dipe
Herstfeld
Neudietendf.
Grossneundf.
DRESDEN
Namur
Bonn
Remagen
Alsfeld
Gera
Zwickau
Dinant
Weywertz
Westerbg
Hunfeld
Lauterbach
Meiningen
Saalfeld
Marloie
Gouvy
COBLENZ
Mayen
Fliedn
Mellrichstadt
Libramont
Daun
Bad Neustadt
Coburg
Stockheim
Karlsbad
Erdorf
Wengerohr
Wisbaden
Gelnhsn
Gemünden
Ebenhsn
Neuenmarkt
Wirsberg
Eger
Bayreuth
Schweinfurt
Bamberg
Kitzingen
Forchheim
Kirchenlaibach
Wiesau
LUXEMBOURG
Lauterecken
Nonnweiler
Merzig
Bensheim
Worms
Ludwigshfn
Landau
Weiden
Verdun
Diedenhofen
Saarbrücken
Osterbkn
Amberg
Schwandorf
Metz
Pagny
Neumarkt
Furth
Cham
Eisenstn
Zwiesel
St. Dizier
Nancy
Lunéville
KARLSRUHE
Pforzheim
Bietigh
Gaildorf
Nördlingen
Regensburg
Plattling
Epinal
STRASBOURG
STUTTGART
Donauwörth
Ingolstadt
Bologne
Neufchâteau
Offenbg
Reutlingen
Neuoffingen
Augsburg
Passau
Schlettstadt
Tübingen
Mechingen
Landshut
Neumarkt-St. Veit
Colmar
Freiburg
Riedlingen
Sigmaringen
MUNICH
Simbach
Langres
Donaueschingen
Mindelheim
Mühldorf
Ried
Vesoul
Mülhausen
Lorrach
Buchloe
Rosenheim
Belfort
Montbéliard
Gray
BASLE
Kempten
Murnau
SALZBURG
Besancon
Immenstadt
Partenkirchen
Berchtesgaden
Dijon
Dole
Feldkirch
INNSBRUCK
Bischofshf
SWITZERLAND
FRANCE
BELGIUM
GERMANY
AUSTRIA


SWEDEN
BORNHOLM (DANISH)
Rönne
LITHUANIA
KAUNAS
Tilsit
KÖNIGSBERG
Pillau
Fischhausen
Insterburg
Darkehmen
Gumbinnen
Goldap
Angerburg
Treuburg
Grodno
Lyck
Grajewo
Johannisburg
Arys
Sensburg
Lötzen
Rastenbg
Kruglanken
Rothfliess
Mohrungen
Allenstein
Ortelsburg
Raszujka
Bialystok
Lapy
Ostroleka
Mlawa
Neidenburg
Soldau
Hohensalza
Thorn
Sierpc
Wloclawek
Plock
Nasielsk
Modlin
Tluschtsch
Siedlce
Brest Litovsk
Małkinia
Czeremcha
WARSAW
Minsk Mazowiecki
Łuków
Piljawa
Skierniewice
Łowicz
Łódź
Koluszki
Deblin
Radom
Lublin
Chelm
Skarżysko-Kamienna
Kielce
Częstochowa
Sandomierz
Zawada
Rozwadow
Przeworsk
Jaroslaw
Rzeszów
Przemysl
Dębica
Tarnów
Jasło
Sanok
Chyrów
Stróże
Nowy Sącz
Lupkow
Strazske
Uzok
Eperjes
Košice
Uzhorod
Cop
Hidasnémeti
S.N.Mesto
Ruzumberok
Brezno
Banská Bystrica
Vrutky
Žilina
Bujnice
Trenčin
Diviaky
Zvolen
Bošany
Nitra
Leopoldov
Kúty
Kúndenburg
Znaim
Budweis
Okříšky
Iglau
Deutsch Brod
Olmütz
Prerov
Přerau
Tabor
Písek
Kolin
Trübau
Königgrätz
Turnau
Glatz
Neisse
Königshanne
Grottkau
Kamenz
Brieg
Oels
Wohlau
Gr. Wartenberg
Kepno (Kemper)
Ostrowo
Karsznice
Petrikau
Militsch
Rawitsch
Glogau
Sorau
Guben
Crossen
Beeskow
Lübben
Luckau
Calau
Spremberg
Senftenbg
Gorlitz
Kohlfurt
Lauban
Liegnitz
Jauer
Königszelt
Rumburg
Zittau
Reichenberg
Tetschen
Aussig
Dresden
Meissen
Riesa
Leipzig
Halle
Magdeburg
Berlin
Potsdam
Brandenburg
Rathenow
Stendal
Wittenberge
Ludwigslust
Schwerin
Wismar
Rostock
Stralsund
Greifswald
Anklam
Pasewalk
Gollnow
Naugard
Wietstock
Stargard
Gryfino
Pyritz
Angermünde
Eberswalde
Freienwalde
Bad Freienwalde
Soldin
Landsberg
Friedeberg
Küstrin
Frankfurt
Reppen
Züllichau
Meseritz
Zielenzig
Werbig
Neu Bentschen
Bentschen
POSEN
Gnesen
Wreschen
Schwenten
Fraustadt
Lissa
Freystadt
Sagan
Jarotschin
Krotoschin
Ponetów
Ostrowo
Militsch
Rawitsch
Oels
Namslau
Krauzburg
BRESLAU
Brieg
OPPELN
Vossowska
Gr. Strehlitz
Beuthen
Sosnowice
Zdkowice
Miechów
Kraków
Katowice
Heydebreck
Ratibor
Deutsch Rasselwitz
Deutsch Wette
Jägerndorf
Troppau
Nordstrand
Bohumin
Teschen
Cadca
Annaberg
Bielsko
Żywiec
Suchá
Trübau
Kolin
Prerau
PRAGUE
Tabor
Písek
Budweis
Znaim
Gmünd
Sigmundsherb
Hadersdf
St. Pölten
VIENNA
St. Valentin
Wels
Amstetten
Freiland
Wiener Neustadt
Kastenreith
Selzthal
Hieflau
St. Michael
Bruck
Friedberg
Szombathely
Csorna
Pápa
Székesfehérvar
Sopron
Hegyeshalom
Győr
Komárom
Nové Zámky
Galanta
Bratislava
Lundenburg
Kúty
Leopoldov
Nitra
Bošany
Zvolen
Banská Bystrica
Brezno
Ruzumberok
Žilina
Vrutky
Bujnice
Trenčin
Diviaky
Košice
Uzhorod
Cop
Hidasnémeti
S.N.Mesto
Eperjes
Strazske
Lupkow
Nowy Sącz
Stróże
Tarnów
Jasło
Sanok
Chyrów
Przemysl
Jaroslaw
Przeworsk
Rzeszów
Dębica
Sandomierz
Zawada
Rozwadow
Kielce
Częstochowa
Skarżysko-Kamienna
Chelm
Lublin
Radom
Deblin
Koluszki
Łódź
Skierniewice
Piljawa
Minsk Mazowiecki
Łuków
Siedlce
Brest Litovsk
Małkinia
Czeremcha
Lapy
Ostroleka
Mlawa
Raszujka
Bialystok
Grodno
Ortelsburg
Rudczanny
Johannisburg
Grajewo
Lyck
Arys
Sensburg
Lötzen
Rastenbg
Kruglanken
Rothfliess
Mohrungen
Allenstein
Bischofsburg
Riesenbg
Osterode
Miswalde
Mohrungen
Hormdt
Guttenhausen
Marienburg
Elbing
Dirschau
Marienwerder
Dt. Eylau
Neidenburg
Gardeja
Culmsee
Jamelnik
Weissenberg
Marksdorf
Briesen
Schneidemühl
Konitz
Firchau
Flatow
Jastrow
Neustettin
Schivelbein
Wurow
Ruhnow
Falkenburg
Kallies
Stargard
Gryfino
Pyritz
Greifenhagen
Pasewalk
Gollnow
Naugard
Wietstock
Plathe
Greifenberg
Gramenz
Belgard
Köslin
Schlawe
Rügenwalde
Stolp
Lauenburg
Bütow
Dirschau
Elbing
Marienburg
Gdingen
Hormdt
Mohrungen
Rothfliess
Miswalde
Riesenbg
Osterode
Dt. Eylau
Neidenburg
Gardeja
Culmsee
Jamelnik
Weissenberg
Marksdorf
Briesen
Schneidemühl
Konitz
Firchau
Flatow
Jastrow
Neustettin
Schivelbein
Wurow
Ruhnow
Falkenburg
Kallies
Stargard
Gryfino
Pyritz
Greifenhagen
Pasewalk
Gollnow
Naugard
Wietstock
Plathe
Greifenberg
Gramenz
Belgard
Köslin
Schlawe
Rügenwalde
Stolp
Lauenburg
Bütow
Dirschau
Gdingen
DANZIG
Braunsberg
Friedland
Bartenstein
Heilsberg
Heilsbg
Korschen
Gerdauen
Darkehmen
Wehlau
Labiau
Cranz
Pillau
Fischhausen
Insterburg
Gumbinnen
Stallupönen
Pillkallen
Pillkuhnen
Goldap
Angerburg
Treuburg
Grodno
GERMAN RAILWAYS:-
(Electrified)
Principal 4' 8½" Gauge Lines
Other " " "
Narrower-Gauge Lines
Railways in other countries:-
Principal Standard-Gauge Lines

Notes and News

Penicillin for Railway Accident Victims.—Penicillin valued at Rs. 25,000 was administered to injured persons in hospital at Karachi after the collision at Jungshahi, North Western Railway, India, reported in our April 27 issue.

Vickers Train Lighting Co. Ltd.—It is announced that the Secretarial and Accounts Departments of Vickers Train Lighting Co. Ltd. have been re-transferred from Bath to Vickers House, Broadway, Westminster, London, S.W.1.

Canadian Locomotive Co. Ltd.—At the annual meeting of the Canadian Locomotive Co. Ltd., the President told shareholders that last year had been the best in the company's history. Eighty locomotives had been delivered in 1944.

Proposed Sind-Gujarat Connection.—The Indian Railway Board has decided to give priority to an investigation into the possibilities of a direct railway between Sind and Gujarat as part of the post-war development of railways in India.

Mogyana Railway Company.—A further share issue is receiving the consideration of the board of the Mogyana Railway Company, Brazil, which also, it is reported, contemplates the purchase of nine 2-8-2 locomotives and 300 steel closed wagons.

Laurence, Scott & Electromotors Limited.—The profit of Laurence, Scott & Electromotors Limited, for the year ended December 31, 1944, after taxation, was £139,311 (£109,504). The amount brought in was £6,871 (£5,483). The sum placed to preference capital reserve was £6,600 (£6,688). The ordinary dividend was at the rate of 12½ per cent. (same) and the amount carried forward was £7,029.

New Wagon-Building Works for Switzerland.—Schindler-Waggon A.G. is the name of a new concern, formed in Switzerland, the main object of which is stated to be the building of railway wagons and the production of railway and other industrial material. The parent company is Industriebedarf A.G., of Hergiswil, the share capital of which was increased to fr. 1,500,000 by the end of 1944, and now has been further increased to fr. 2,000,000. The new works is to be erected at Lausen.

Wood Fuel and Fire Insurance in Brazil.—It is reported that the considerable increase in fires occurring to goods in transit on the Central Railway of Brazil, due to the greater use of wood fuel, has led the General Manager of that railway to classify such accidents as cases of *força-maior* and so outside the range of normal risks attributed to railways by law. Insurance companies, as a consequence, have increased the *ad valorem* fee on goods from 0·15 per cent. to 0·3 per cent. A large increase has been noted also in cases of damage to passengers' clothing on account of sparks.

Minister's Congratulations to Transport Industry.—Lord Leathers, Minister of War Transport, has issued the following message to the transport industry: "At this time of national rejoicing I send my warmest congratulations to all engaged in transport on the successful accomplishment of the great tasks which the European war has imposed. At every stage in the struggle the maintenance of transport services has been an indispensable condition of the defence of our homes and of victory in the field, and, realising this, the enemy has sought to smash the lines of communication and to destroy the means of conveyance. It will not be forgotten that through the worst air attacks you kept the wheels of transport turning and thus enabled the country to gather its strength for the offensive. You maintained the flow of essential supplies to our industries and people while carrying the greatest military load in our history. To all men and women who have worked on the railways and roads, in the docks, and on the inland waterways, I offer my sincere thanks, knowing that I voice the feelings of the whole country. You will not wish to rest upon your laurels. You know that there will be heavy calls on transport for military operations in the Far East, as well as for the feeding of Europe's starving peoples, and for the rebuilding of our industries and homes."

Large South African Bus Merger.—A report from Cape Town dated April 16 recorded the registration of the Public Utility Transport Corporation (an offspring of Industrial Commercial Holdings Limited) with a capital of £1,000,000 for the purpose

G.W.R. Moves Beer for Overseas Troops

Some of the 450,000 quart bottles of beer from London breweries which were despatched by the G.W.R. to troops overseas in a recent four weeks

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices May 15, 1945	Rise/Fall
G.W.R.				
Cons. Ord. ...	62⅝	55	55	– 1
5% Con. Pref. ...	122½	114⅝	121½	—
5% Red. Pref. (1950)	110½	104	105	—
5% Rt. Charge ...	135½	128	136½	—
5% Cons. Guar. ...	134-⅛	125	133½	– 1
4% Deb.	118⅜	112⅜	117	—
4½% Deb.	118-½	114	118½	—
4½% Deb.	124½	119½	122½	—
5% Deb.	137	129½	136½	—
2½% Deb.	77	73⅛	76½	—
L.M.S.R.				
Ord.	34⅜	27⅞	27½	– ⅜
4% Pref. (1923) ...	64¼	55½	55½	– 2
4% Pref.	81	72½	78	– ½
5% Red. Pref. (1955)	105⅞	102	105½	—
4% Guar.	107½	99⅛	103½	—
4% Deb.	111½	104	109½	—
5% Red. Deb. (1952)	111	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7-⅞	6⅞	—
Def. Ord.	5-⅛	3⅜	3⅜	—
4% First Pref. ...	68⅞	55½	55	– 1
4% Second Pref. ...	35⅜	28½	27½	– 1
5% Red. Pref. (1955)	102½	97½	102	—
4% First Guar. ...	105½	96⅜	102½	—
4% Second Guar. ...	95½	88½	96	—
3% Deb.	88½	80⅜	87½	—
4% Deb.	110½	103½	109	—
5% Red. Deb. (1947)	105⅜	101½	101½	—
4½% Sinking Fund Red. Deb.	107	104½	105½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	74	– 1
Def. Ord.	26⅜	23	23½	—
5% Pref.	122	113½	120½	– 1
5% Red. Pref. (1964)	117½	112½	115½	—
5% Guar. Pref. ...	134	125½	134½	—
5% Red. Guar. Pref. (1957)	115⅜	112½	115½	—
4% Deb.	118	110	116	—
5% Deb.	135½	127	135	—
4% Red. Deb. (1962-67)	111½	107½	110½	—
4% Red. Deb. (1970-80)	112	108⅜	112½	—
FORTH BRIDGE				
4% Deb.	107	103	105	—
4% Guar.	106½	102	105	—
L.P.T.B.				
4½% "A"	125	119	123½	—
5% "A"	133½	128	133½	—
3% Guar. (1967-72)...	99½	98	99	—
5% "B"	124½	118-⅛	123½	– ½
"C"	72¾	64½	66½	—
MERSEY				
Ord.	35⅜	33	36½	—
3% Perp. Pref. ...	72	66	71	—
4% Perp. Deb. ...	105	103	106	—
3% Perp. Deb. ...	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	6½	—
G. NORTHERN				
Ord.	33⅜	19	27⅜	– ⅛
Pref.	49	37	43½	—
Guar....	70	57-⅞	72	+ 2
Deb.	90½	81½	91	– ½
IRISH TRANSPORT				
Common	—	—	71½	– 1½
3% Deb.	—	—	99-⅞	+ ⅛

* Latest available quotation

of combining various private bus services on the Rand. The company is expected to work in conjunction with Saker Bartle (South Africa) Limited, regarding the servicing of supplies. Preliminary reports indicate that the capital will consist of £850,000 "A" shares carrying 6 per cent. maximum dividend and 50,000 4 per cent. "B" shares, the latter apparently for control. It is proposed to accumulate a portion of profits in a fare reduction pool.

Indian Railway Exhibition.—An important railway exhibition was held at New Delhi in March last. The exhibition was opened on the first day by Sir Edward Benthall, War Transport Member, and visited by between 4,000 and 5,000 people daily. The site of the exhibition adjoined New Delhi station and among the exhibits were the latest type of well-wagon for carrying army tanks, a coach showing methods of repair adopted under wartime conditions, a specimen of the early permanent way used on Indian railways, and, by way of contrast, some modern army lorries with pneumatic tyres, fitted with steel flanged-rims for use on railway track. Full use was made of models to illustrate signalling, track inspection, dock operation, ferries and other aspects of railway work in India.

Aluminium Houses.—Addressing members of the Aluminium Development Association in London recently, Sir Stafford Cripps, Minister of Aircraft Production, stated that the Government had placed an order for 50,000 temporary aluminium houses. The development in the strength of aluminium and magnesium alloys had been very remarkable but there was still a huge field for fresh advances. Someone must be prepared to put energy, time and finance into this research and development, and the obvious people to do that were the firms in the light metals industry. The aluminium housing scheme would give the light alloy industry the chance to continue production during a most difficult period when, owing to the cut in the aircraft programme, they would be largely cut off from their major line of production and would not have been able, because of war circumstances, to have completed their development of alternatives. The Light Metals Control would be simplified very shortly to give greater freedom to the industry.

Midland Railway Co. of Western Australia Ltd.—The report of the Midland Railway Co. of Western Australia Ltd. for the year to June 30, 1944, shows gross traffic receipts of A£330,830 (A£392,954), working expenses of A£154,226 (A£149,541), and net receipts of A£154,226 (A£243,413). Revenue account shows a credit balance of £62,016 sterling after charging for renewals, etc., and providing for the loss on exchange, for London administration expenses, for interest on debenture stocks, and adding £46,400 brought forward. The dividend of 4 per cent. for the year to June 30, 1944, less tax at 9s. 7d. in the £, requires £12,358, and £2,471 is allocated to redemption of reversionary certificates, leaving £47,187 to be carried forward.

Swiss Locomotive & Machine Works.—For the year ended June 30, 1944, the Swiss Locomotive & Machine Works, of Winterthur, returned a net profit of fr. 595,373, compared with fr. 583,613 for the previous financial year. Inclusive of the amount carried forward, there was a favourable balance of fr. 676,383 (fr. 661,010), and a dividend of 6 per cent. (same) was paid on the preference share capital of fr. 4,000,000. In addition, one of the cumulative preference dividends in arrears, likewise of 6 per cent., was paid. The sum of fr. 96,383 (fr. 81,010) was carried forward. The company's report states that the locomotive department, in addition to routine repair and reconstruction work, delivered 32 vehicles to the Swiss Federal Railways during the year under review. Other orders completed for the Federal Railways included those for the mechanical parts for six electric locomotives and for seven shunting locomotives.

Railway Posters to Mark European Victory

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways :—

Joseph Lucas Limited : Relay cut-out.
British Ropes Limited : Steel wire rope.
Thomas Firth, and John Brown, Limited Steel wire.
Spencer Wire Co. Ltd. : Steel wire.
Buck & Hickman Limited : Flat steel.
Benjamin Electric Limited : Reflectors, etc.
Holophane Limited : Lanterns.
Siemens Brothers & Co. Ltd. : Elements for soldering irons.
Harcourts Limited : Pendant fittings.
General Electric Co. Ltd. : Soldering irons.
F. Wigglesworth & Co. Ltd. : Tex ropes.
Docker Brothers : Leather reviver.
Ibbotson Brothers & Co. Ltd. : Files.

Two of the posters issued by the main-line railway companies to mark the victorious end of the war in Europe

Railway Stock Market

Stock markets have shown an uncertain tendency, but there was a firmer undertone in British Funds, and movements generally were moderate. Industrial shares recorded further small declines, although in some cases the lower prices attracted buyers. The waiting attitude of markets is not only attributed to the General Election looming ahead, but also to the many international questions requiring solution. Gold mining shares developed strength and there was a fair amount of support for Far Eastern securities on the progress of the Japanese war.

Home rails remained under the influence of uncertainty as to the position after the termination of the control agreement, and junior stocks were lower on balance. Nevertheless, the reduced prices attracted a certain amount of buying, and the tendency firmed up a little, but generally the big yields have not stimulated demand. This perhaps could hardly be expected with markets in their present uncertain frame of mind, although dividends at current rates appear virtually assured for the next two years. There are growing hopes that the Government's policy in regard to transport and the railways will be announced before the General Election. Any authoritative statement in this connection might, of course, have an important effect on home railway stocks. Incidentally, current prices are well below best levels touched in 1937. Great Western was then 67⅜, L.M.S.R. 36½, Southern deferred 27⅝, and L.N.E.R. second preference 31½. The uncertain tendency which has now developed in industrial shares is due partly to the fact that investors generally are now realising that the railways are not the only important industry whose future will be bound up materially with Government policy, removal of controls and similar factors that may not be finally decided until after the General Election. If the railways receive fair treatment, it should be possible for dividends at around current rates at least to be maintained after the end of control; but the outlook is bound up with so many uncertain factors that it is impossible to form any very definite view. Over a period, junior stocks may very well show improvement, but in present circumstances they must necessarily be regarded as carrying speculative risk. Meanwhile, however, attractive yields are also obtainable on such stocks as L.M.S.R. 1923 preference, L.N.E.R. second preference and Southern preferred, which nevertheless must be expected to move closely with the general trend of home railway securities. Prior charge stocks were again easier, reflecting the recent tendency in British Funds and other high-grade investments.

Compared with a week ago, Great Western has moved back from 56¼ to 55, the 5 per cent. preference from 121½ to 120½, and the guaranteed stock at 133½ also lost a point. Great Western 4 per cent. debentures were maintained at 117. L.M.S.R. receded from 27⅞ to 27¼, the 1923 preference from 57½ to 55¾, and the senior preference from 78½ to 77¾. L.N.E.R. second preference, 28½ a week ago, is now 27½; the first preference has declined from 56 to 55, but the first guaranteed remained at 102½ and the second guaranteed at 96. Among Southern stocks, the preferred declined on balance from 75 to 74; but the deferred at 23½ has been maintained. Southern 5 per cent. preference was a point down at 120½; the 4 per cent. debentures remained at 116. London Transport stocks were unaffected by the 'bus strike, which will not of course affect the revenue available for dividend as this is fixed by the control agreement. In fact, the "C" stock has improved from 65¼ to 66½, and together with Southern deferred, has provided the firmest features among junior stocks.

Argentine rails lacked interest, and prices were lower in the absence of demand. Various debentures were said to be affected by selling in connection with deceased estates. Buenos Ayres Great Southern has eased from 11⅜ to 11, the 5 per cent. preference from 27½ to 27, the 6 per cent. preference from 20½ to 18¾, and the 4 per cent. debenture at 63½ has lost half a point. Buenos Ayres & Pacific consolidated debentures eased to 57, while Buenos Ayres Western and Central Argentine stocks also showed fractional declines. United of Havana 1906 debentures declined to 24¼. San Paulo ordinary was maintained at 54. Reflecting the rise in dollar stocks, Canadian Pacifics improved from 16 to 16¼.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1943/4	No. of Weeks	Aggregate traffics to date: Totals 1944/5	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: May 15, 1945	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	6.5.45	26,760	+ 2,030	18	544,410	505,610	+ 38,800	Ord. Stk.	13½	9½	11	Nil
	Argentine North Eastern ...	753	5.5.45	17,894	+ 144	44	816,200	675,700	+ 140,500	,,	6½	4½	9	Nil
	Bolivar	174	Apr., 1945	4,897	— 209	16	20,965	21,059	— 94	6 p.c. Deb.	18⅜	7½	7½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19⅞	15	22	Nil
	Buenos Ayres & Pacific ...	2,773	5.5.45	148,125	+ 14,063	44	6,044,000	5,006,312	+ 1,037,688	Ord. Stk.	7 11/16	3¾	5½	Nil
	Buenos Ayres Great Southern	5,080	5.5.45	196,562	+ 52,812	44	9,264,062	8,311,625	+ 952,437	Ord. Stk.	14⅝	9¾	11	Nil
	Buenos Ayres Western ...	1,924	5.5.45	58,625	+ 6,938	44	3,109,812	2,622,625	+ 487,187	,,	13¾	9½	10½	Nil
	Central Argentine	3,700	5.5.45	171,750	— 7,156	44	7,958,466	7,103,294	+ 855,172	,,	10½	6⅝	8	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4¾	3	4½	Nil
	Cent. Uruguay of M. Video	972	5.5.45	34.650	+ 2,562	44	1,519,984	1,520,781	— 797	Ord. Stk.	5½	4	5½	Nil
	Costa Rica	262	Mar., 1945	30,802	+ 6,701	38	203,304	199,765	+ 3,539	Stk.	17½	14½	16	Nil
	Dorada	70	Mar., 1945	24,100	— 1,489	12	82,705	73,281	+ 9,424	1 Mt. Deb.	101	101	102½	£5 17/1
	Entre Rios	808	5.5.45	24,550	+ 6,157	44	1,089,469	911,656	+ 177,813	Ord. Stk.	6½	4½	5½	Nil
	Great Western of Brazil ...	1,030	5.5.45	25,800	+ 4,300	18	482,600	418,100	+ 64,500	Ord. Sh.	38/-	23/3	28/9	Nil
	International of Cl. Amer. ...	794	Mar., 1945	$192,246	— $82,950	12	$577,793	$757,635	— $179,842	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	¼	1	Nil
	La Guaira & Caracas... ...	22¾	Apr., 1945	6,506	— 984	16	22,416	29,446	— 7,030	5 p.c. Deb.	88	79	78½	£6 7/5
	Leopoldina	1,918	5.5.45	40,799	+ 3,804	18	807,409	812,737	— 5,328	Ord. Stk.	5½	4½	4	Nil
	Mexican	483	7.5.45	ps. 520,600	+ ps. 137,700	18	ps. 10,931,900	ps. 7,571,900	+ ps. 3,360,000	Ord. Stk.	¾	½	2½	Nil
	Midland Uruguay	319	Mar., 1945	16,993	— 1,573	38	155,974	155,768	+ 206	—	—	—	—	—
	Nitrate	382	30.4.45	14,344	+ 5,781	17	58,757	70,115	— 11,358	Ord. Sh.	75/10	65/10	72½	£3 9/-
	Paraguay Central	274	4.5.45	£56,334	+ £1,074	44	£2,633,610	£2,285,408	+ £348,202	Pr. Li. Stk.	79½	68	78½	£7 12/10
	Peruvian Corporation ...	1,059	Apr., 1945	126,043	+ 4,934	43	1,296,522	1,085,795	+ 210,727	Pref.	9	10	9½	Nil
	Salvador	100	Feb., 1945	206,000	+ 18,000	34	c 957,000	c 984,000	— c 27,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57½	46	54½	£3 13/5
	Taltal	156	Apr., 1945	2,910	— 1,735	42	26.280	54,660	— 28,380	Ord. Sh.	21/3	13/9	12/6	Nil
	United of Havana	1,301	5.5.45	51,140	— 19,878	44	2,405,532	2,569,837	— 164,305	Ord. Stk.	4	2½	2½	Nil
	Uruguay Northern	73	Mar., 1945	1,856	+ 106	38	14,313	13,265	+ 1,048	—	—	—	—	—
Canada	Canadian Pacific	17,028	7.5.45	1,199,000	+ 44,400	18	21,205,400	21,274,800	— 69,400	Ord. Stk.	17¾	13 11/16	16½	£6 6 9
India	Barsi Light	202	Feb., 1945	20.220	— 4,467	44	243,080	237,600	+ 5,480	Ord. Stk.	129½	97½	128½	£3 10/1
Various	Egyptian Delta	607	31.3.45	20,034	— 960	51	705,057	624,658	+ 80,399	Prf. Sh.	7 1/16	5½	6½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	60	Nil
	Midland of W. Australia ...	277	Mar., 1945	17,935	— 7,095	39	173,275	270,532	— 97,257	Inc. Deb.	101½	99½	96½	£4 2/11
	Nigeria	1,900	24.2.45	386,036	+ 10,636	17	—	—	—	—	—	—	—	—
	South Africa	13,301	31.3.45	1,006,202	+ 103,521	52	48,936,105	43,996,851	+ 4,939,354	—	—	—	—	—
	Victoria	4,774	Nov., 1944	1,307,642	— 35,856	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 16 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee